

# Primare SP25 Prisma Design Brief

13 November 2023

**SP25 Prisma** home cinema processor builds upon the strong foundation of the award winning SP25 Prisma, for use with the A35.2 and A35.8 amplifiers to provide exemplary music and movie performance



## Contents

- Overview page 1
- Primare Design Philosophy page 2
- Preamplifier Technology page 4
- Audio Processing Technology page 4
- Prisma Network Player Technology page 6
- Connectivity and Control Technology page 7
- Specifications page 9

## Overview

The SP25 Prisma is a multi-channel processor designed for both cinephile and audiophile, composed of carefully considered and crafted features and functionality to provide the best home cinema experience for the greatest number of people.

For the cinephile, the SP25 Prisma includes 4K dynamic HDR switching and eARC, with eleven channels of processing and preamplification supported by a custom linear power supply and tuned output stage to provide exemplary performance, particularly when paired with the award winning A35.8 and A35.2 amplifiers.

For the audiophile, dual eight channel DAC chips allow for a unique digital to analog conversion circuit allocating four channels of conversion when delivering signal to the pair of front left and right analog outputs perfect for bi-amping of the front left and right speakers for improved stereo performance.



Primare's proven Prisma network player platform provides complete streaming features and functionality, as well as multi-room / multi-zone options, with AirPlay2, Bluetooth, Chromecast, Roon\*, and Spotify Connect (HiFi ready). With the associated Prisma application, combined with the onscreen setup menu, offering easy system customisation from the listening position. Additionally, Prisma provides comprehensive control of network connected hard drives, as well as embedded Prisma Radio, Tidal HiFi\*, and Qobuz\* services for simplified access to these most used music sources.

For both cinephile and audiophile, Dirac Live® Room Correction utilises state-of-the-art, patented algorithms to analyse and digitally reduce the impact of the room, enhancing the performance of any audio system. Dirac optimises the sound not only with respect to frequency, but also to phase, providing not only linear frequency response but precise arrival time for both two and multi-channel listening with previously unheard detail and clarity.

Individualised control and connectivity is afforded by seventeen customisable input pre-sets for virtually any combination of digital and analog, video and audio input configurations, combined with five customisable speaker setup pre-sets for a variety of speaker and DSP configurations to suit any viewing and listening requirements.

Finally control and connectivity is provided by both the **Prisma** music streaming and system control platform, and **PRISMA** remote capable of controlling virtually every Primare model, past and present, as well as any video display, with OTA update capabilities.

\*Roon with AirPlay and Chromecast as endpoint, Roon Ready by future update

## Primare Design philosophy

Primare designs are a result of our Practical Design Approach, informed by the Swedish concept of lagom – meaning not too much, not too little, but rather everything in balance, harmony, and proportion.

This philosophy means that Primare constantly scans the horizon for new developments, and is often at the forefront of new technologies, having been among the first to embrace streaming and stored digital technologies, as well as class D amplification for true high-end performance.

However, product development decisions are never made with marketing in mind – for the purposes of drawing attention. Rather a new feature is implemented or component part used only if a significant performance improvement will be realized.

For this reason, Primare prefers to perfect rather than pioneer; to produce only products that significantly improve upon what was previously available, with a fierce devotion to using only those technologies that can provide the best experience, and with a steadfast conviction to building products that have the broadest possible long-term use value.

As a result, product development is based on sound fundamental design elements of thoroughly implemented power supply designs, artfully crafted ultra-short signal paths, and system control from the listening position, so that each individual component and sub



circuit operates sympathetically to achieve a cohesive whole that is effortlessly available from the palm of your hand:

1. Thoroughly implemented power supply designs – so that all elements of any design operate effortlessly at their fullest effectiveness. Every product and sub-circuit demands unique power supply solutions - a more conventional linear supply or advanced switch mode main supply may work best dependent upon the application, and carefully crafted individual discrete power supplies are strategically inserted into the circuit to deliver power exactly where and how much is needed.
2. Artfully crafted ultra-short signal paths - so that each individual component and sub circuit operates sympathetically to achieve a cohesive whole. Elegant and simple electrical designs are used in even the most complex product, utilizing ultra-short signal paths with all gain in one device whenever possible. Ultimately, this results in fewer, higher quality parts for a reduction in associated distortions and an increase in overall electrical efficiency.

To that end, basic technologies have been selected to realize those benefits:

- 2 and 4-layer double-sided circuit board construction allows for the most direct and efficient layout of circuit components not only for the shortest signal path, but also to achieve a sympathetic layout of circuit and sub-circuit components more easily for best performance.
  - Surface mount components are used whenever possible as this allows for direct connection of the circuit device or component to the circuit board trace with the solder being used solely to mechanically hold the part in place. The elimination of the small metal lead or wire at each connection point in a more conventional large scale circuit device or component cumulatively shortens the signal path. Additionally, conventional large-scale components demand through hole or “eyelet” construction, limiting direct contact of the component’s lead to the circuit board trace and resulting in the solder providing electrical connection as well as mechanical connection for the device. Neither solder nor the metal used in the leads of most large-scale devices provide the best signal transmission, therefore limiting potential performance of even the best designed circuits.
  - Class D amplifier technology has many inherent advantages, one of which is the ability to locate the heat sink directly on the circuit board within the amplification module, considerably reducing circuit path length and allowing for the power output devices to be directly connected to the speaker output connection posts.
3. Control from the listening position – whether using an IR remote or mobile device, Primare has believed that system setup and control is best done at the listening, and viewing, positioning from the very beginning of the company. This results in the Prisma system remote control, capable of controlling virtually every function of every model we have produced, and the Prisma application for use with network connected mobile phones or tablets. In following this path, Primare provides control from the most convenient and effective position in any media room while engineering high performance components of elegant and discrete design that neither draw attention or distract from the best possible viewing and listening experience.



## **Preamplifier Technology**

### Input Section

Carefully crafted input circuitry utilizes relays for input switching providing better isolation and sound than found in more conventional CMOS (Complementary metal-oxide-semiconductor) switches.

### Power Supply Section

The foundation of the SP25 Prisma circuitry is the specially designed linear power supply, utilising a custom toroidal transfer, providing on-demand ultra-low noise power to all circuitries.



## **Audio Processing Technology**

### Channel Allocation

The SP25 Prisma offers 11 channels of Atmos and DTS X immersive audio processing, with assignable channel allocation and dual Front Left and Right analog outputs allowing for bi-amping.

### Dirac Live Calibration

Dirac Live® Room Correction applies state-of-the-art, patented algorithms to analyse and digitally reduce room impact and enhance speaker performance through your Primare system. Dirac Live delivers a larger sweet spot, accurate staging, clarity, voice intelligibility, and a deeper, tighter bass not otherwise possible, fully tuneable to your preference.

Dirac Live Room Correction features include:

- Impulse response correction: Where other room correction solutions deal only with the magnitude, Dirac Live will improve the entire impulse response of the system through our patented mixed-phase technology.



- **New Auto Target Curve:** The new Auto Target Curve replaces our old one-size-fits-all model and is automatically generated based on your speakers' performance. It more faithfully reflects the inherent character of the measured system, minus the adverse acoustic effects of the room. You can now enjoy drastically improved sound without having to make a single adjustment.
- **Multiple filter profiles:** You can create different settings depending on where you sit, the content you're listening to, or even one for each family member.

Dirac is a subscription-based software program with multiple levels, with the SP25 Prisma having access to the following tier:

- **Limited Bandwidth subscription** is included, which allows for room correction up to 500 Hz, and the target curve can be tailored within this range. This correction is sufficient to deal with the bass and voice areas but not the entire audible spectrum.
- **Full Bandwidth subscription** available as upgrade directly from Dirac. This is the top tier of the room correction feature. It allows the system to be corrected across the entire frequency range while giving you full control of the target curve.

For more details go to the Dirac page on our website: <https://primare.net/dirac/>

#### Digital to Analog Conversion (DAC) Technology

To allow for playback of virtually any digital source with absolute accuracy and musicality, the SP25 Prisma's refined DAC stage recreates high-resolution sound that is as close as possible to the original source.

At the heart of this DAC stage is the critically acclaimed ES9026PRE, utilising ESS' patented HyperStream II architecture and Time Domain Jitter Eliminator. The ES9026PRO 32-Bit Audio DAC delivers an unprecedented DNR of up to 124 dB and THD+N of -110dB, the industry's highest performance level.

A unique feature of the implementation of a pair of the eight channel ESS9026PRE chips in the SP25 Prisma is the use of four channels for front left and right speaker positions subtly improving stereo performance.

Inputs include, two optical (Toslink), one RCA (SPDF), and one USB-B digital. The USB-B input allows playback of files up to PCM 768kHz/32bit and DSD 512/22.6MHz, DoP 256/11.2MHz

#### **Prisma Network Player Technology**

The Prisma platform provides multi-room/multi-zone connectivity and control for playback of stored and streamed media, wired or wireless, all managed from any mobile device through a dedicated system control app. In addition to Bluetooth®, AirPlay2, and Spotify Connect, Prisma features Chromecast built-in, a unique streaming portal allowing effortless direct connection to hundreds of streaming applications for the best possible performance and user experience.

Prisma App, in addition to the configuration settings control listed above, provides:

- Switching of all inputs, analog and digital, stored or streamed
- Volume control and input sensitivity adjustment



- Customization of input options, including renaming
- Playlist and queue functionality from connected LAN storage devices
- Wake up from standby with streaming input signal

#### Connectivity

- Digital - USB-A
  - Sample rates up to PCM 24/192kHz and DSD 128/5.6MHz
  - File formats: WAV, LPCM, AIFF, FLAC, ALAC, MP3, MP4 (AAC), WMA, OGG, DSD
- Network
  - Wired/LAN Ethernet connection for wired network system connection
  - Wireless/WLAN - dual band wireless technology (WLAN IEEE 802.11 a/b/g/n and 802.11 ac compliant)
- Streaming
  - Bluetooth – connects Apple, Android, and Windows devices directly for playback of either streamed or stored content from the associated device with lossy compression. Given the wide availability of this technology and lower resolution capabilities, Bluetooth is an easy way to stream content for informal listening.
  - AirPlay2 – connects Apple devices over the WIFI network for playback of either streamed or stored content from the associated device with lossless compression. As a result, AirPlay has the capability of playing over greater distances than Bluetooth, and as the Apple Lossless Audio Codec is used to allow streaming quality up to CD quality (44.1 kHz), is appropriate for more critical listening. Additionally, AirPlay2 can be used for effective multi-room /multi-zone whole house system control with AirPlay speakers.
  - Spotify Connect – connects any device with the Spotify application over the WIFI network directly to that service and allows for playback at the highest level offered by the required Premium service (up to 320 kbps).
  - Chromecast built-in - offering the greatest level of connectivity and control options:
    - The Chromecast built-in associated Google Home application connects the Prisma device to your WIFI network for casting hundreds of enabled music streaming services.
    - Because it provides a direct connection between the SP25 Prisma and the preferred music service through the network, playback quality is limited only by the quality of resolution provided by that service, meaning the possibility of higher resolution playback from services like TIDAL HiFi and Qobuz (up to 24-bit/96kHz).
    - More than one device can be connected at a time, content can be cast to any Chromecast built-in device on the network, and control of all functions can be accomplished from anywhere within the network.
    - Automatic Prisma firmware updating through Google Home application.
    - Voice control through the Google Home speaker and Google Assistant is anticipated as that system becomes readily available.
  - Roon Ready\* - Roon is a sophisticated digital music management software. In addition to music browsing, Roon is a multi-room, multi-user networked audio



platform built, featuring bit-perfect playback, DSD and PCM up-sampling, and signal path display.

- Prisma Application Embedded Services: Radio; Qobuz\*; Tidal HiFi\* providing easy access radio directly from the app, Qobuz resolution to 24/192 kHz, Tidal Master file processing to first full MQA unfold, and gapless playback.

\*Roon with AirPlay and Chromecast as endpoint, Roon Ready by future update.

## Connectivity and Control Technology

- Seventeen customisable input pre-sets allow for virtually any combination of digital and analog input configurations.
- Five customisable speaker setup pre-sets allow for a variety of speaker and DSP configurations
- Temporary AV delay and speaker gain adjustments can be made “on-the-fly” from the remote to make subtle changes that may be desired during playback of differing content.
- Improved volume control IC selected for optimal channel balance and low listening level performance.
- The latest generation OLED display technology used in the I35 was originally developed for the automobile industry to ensure long life in even the most hostile environments, and improved readability due to greater consistency of color value and brightness level.
- Auto sense input circuitry automatically selects any input source as it is activated.
- RS-232 connection, in addition to being used for component quality control testing of each and every product, allows for the use of whole home system control technologies such as Control 4.
- 12V triggers for coordinated system turn on and turn off.

## Audio Settings

- Balance – to adjust the output balance between the left and right speaker
- Startup volume – sets the volume level at a predetermined level upon turn on from standby or at the level when last switched off.
- Maximum volume – sets the maximum volume
- Mute volume – sets the output level when muted, from 0 to any preferred setting

## Video Switching

- HDMI 2.0b and HDCP 2.2 matrix switching
- 18 Gbit/s output for 4K UHD video up to 60 Hz, with 21:9 aspect ratio support
- Dolby Vision, HDR, and HDR10+
- 3D passthrough
- On Screen Display

## General

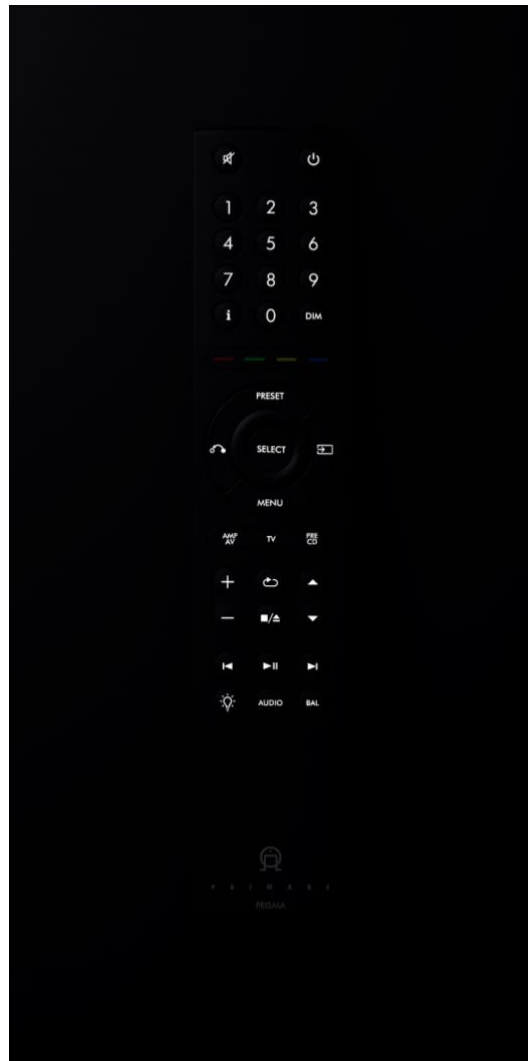
- Show inputs – choose between showing all enabled inputs or only those with signal
- Front panel – to lock the front panel to disable all front panel controls
- Auto dim – select the amount of time at which the front panel display will dim
- LED brightness – set the level of display brightness for three specified dim levels



- Standby settings:
  - Auto-standby – sets the amount of time without user interface action or signal from last selected source before the device automatically goes into standby
  - Wake – enables auto-sense to wake up the device from standby upon detecting an input signal source
  - Wake+Select - enables auto-sense to wake up the device from standby upon detecting an input signal source and selecting that input for playback
  - Standby pass-through – for HDMI signal passthrough allowing for use of the video display without using the SP25 Prisma.
- Factory reset – allows for the device to be returned to factory default settings
- Reboot – for power off/on reboot from the Prisma remote

PRISMA system remote control - SP25 Prisma will be the first model to include the new PRISMA system remote control, providing IR control for every past and present Primare model:

- Basic TV control
- OTA update support
- Backlit





## SP25 Prisma Specifications



### Preamplification

#### Frequency Response:

- Analog Input Bypass:  $< -0.2\text{dB}$
- Analog Input Stereo:  $< +/-0.2\text{dB}$
- Digital Input:  $< +0.1/-0.3\text{dB}$

#### THD+N 20hz-20Khz, 8 ohms:

- Analog Input Bypass:  $<0.002\%$
- Analog Input Stereo:  $<0.008\%$
- Digital Input:  $<0.003\%$

#### Signal to Noise:

- Analog Input Bypass:  $>110\text{dB}$
- Analog Input Stereo:  $>106\text{dB}$
- Digital Input:  $>110\text{dB}$

#### Analogue Inputs:

- 5 pair RCA (L & R) with 7.1 input option

Input Impedance: RCA 15k $\Omega$

Output Impedance: 50 Ohm

Output Level: 10V RMS maximum

Gain: 16.5dB

#### Analog Outputs:

- 4 x RCA (L & R)
- 1 x RCA Centre
- 2 x RCA Subwoofer – parallel



- 2 x RCA Surround
- 2 x RCA Surround Back
- 2 x RCA Height Front
- 2 x RCA Height Back
- 2 x RCA Line Out

### Audio Processing

- Decoding formats
  - Dolby Atmos
  - Dolby Digital
  - Dolby Plus
  - Dolby Prologic IIx
  - Dolby Surround
  - Dolby TrueHD
  - DTS X
  - DTS
  - DTS ES
  - DTS Neo:6
  - DTS HDMaster Audio
  - DTS HD High-Res Audio
  - MULTI/2 CH PCM/LPCM
- Additional Modes
  - Bypass, Stereo, Party (all channels driven)
  - Dolby Surround: movie, music, night
  - DTS Neural X
- 11 channel processing, with assignable channels and Front Left and Right analog outputs allowing for:
  - 7.1.2 and 5.1.4 configurations
  - 5.1.2 configuration with bi-amped Front Left/Right channels
  - 7.1.4 configuration with addition of a stereo amp for front speakers
- Dirac Live EQ enabled
  - Limited Bandwidth subscription included,
  - Updateable to Full Bandwidth subscription

### Digital to Analog Conversion

Chip set: 2 x ESS 9026PRO

#### Inputs

- 2 x TOSLINK (optical) up to 192kHz/24 bit
- 1 x RCA up to 192kHz/24 bit
- 1 x USB-B up to 768kHz/32 bit; DSD 512/22.6MHz; DoP 256/11.2MHz

### Video

Inputs: 4 x HDMI 2.0b

Outputs: 2 x HDMI 2.0b - one each eARC and Aux



### Matrix switching

- OSD
- 3D and 4K UHD pass-through:
- HDCP 2.2
- RGB
- YCbCr: 4:4:4; 4:2; 4:2:0
- Dolby Vision, HDR, and HDR10+

### Prisma Network Player (audio only)

Audio formats: WAV, AIFF, FLAC, ALAC, MP3, MP4 (AAC), WMA, OGG, DSD

### Inputs:

- USB-A: up to 192 kHz/24 bit; DSD 128/5.6MHz
- Airplay2®
- Bluetooth®
- Chromecast built-in®
- Spotify Connect® (Spotify HiFi Ready)
- UPnP/DLNA
- LAN:
  - Up to 192 kHz/24 bit; DSD 128/5.6MHz
  - Data transfer rate: 10/100Mbit
- WLAN:
  - Up to 192 kHz/24 bit; DSD 128/5.6MHz
  - IEEE 802.11: 5GHz a/n/ac; 2.4GHz b, g, n
  - Data transfer rate: maximum of physical layer rate of 390 Mbps

### General

#### Control

- PRISMA Primare universal system remote control
  - For all current and older Primare devices
  - Programmable via Bluetooth (IOS/Android App)
  - Basic TV support
  - Supports OTA updates
  - Backlight
- IR in/out
- Trigger out
- RS232

#### Power Consumption:

- Standby:
  - ECO <0.5W
  - Normal <5W
  - HDMI Pass-Through <6W
- Operate:
  - <28W



Dimensions (wxdxh):

- 430 x 405 x 142 mm with knobs and connectors
- 430 x 382 x 142 mm without knobs and connectors

Weight: 10 kg

Colour Options: Black and Titanium

MSRP: €4750/\$5250



Features and specifications are preliminary and subject to change.

