

# P R I M A R E

THE SOUND AND VISION OF SCANDINAVIA

## PRE35 Modular Stereo Preampifier Platform Design Brief



**PRE35 balanced stereo preamplifier** features dual XLR inputs and outputs, fully balanced analog preamplification circuitry, and modular construction allowing for sophisticated DAC and Prisma network modules to be added to the analog preamplifier at any time.

The addition of SM35 Prisma network player module provides multi-room/multi-zone connectivity and control for playback of stored and streamed media, wired or wireless, all managed from a mobile device through a dedicated system control app. Additionally, virtually any music streaming service can be cast for playback using Chromecast, Bluetooth®, AirPlay, Roon Ready, and Spotify Connect.

To allow for playback of virtually any digital source with absolute accuracy and musicality, the PRE35 Prisma's advanced DM36 DAC stage recreates high-resolution sound that is as close as possible to the original source.

Unique to a high-performance preamplifier, PRE35 Prisma includes WiSA wireless speaker connectivity when the DM36 DAC module and SM35 Prisma network player modules are installed.

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## Design philosophy

All of Primare designs are a result of our Practical Design Approach, resulting in a focus on two fundamental design elements:

1. Thoroughly implemented power supply designs – so that all elements of any design to 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 more easily achieve a sympathetic layout of circuit and sub-circuit components 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.

## 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.

### Control

- Improved 2 x 4 channel balanced mode volume control IC selected for optimal channel balance and low listening level performance.
- The latest generation OLED display technology used in the PRE35 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.
- C25 IR remote control with completely new, proprietary control codes for faster response and reduced interference.



- 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.

### Control Configuration

Either from the front panel or C25 IR remote control, the PRE35 Prisma can be configured to best suit system needs:

- Input settings
  - Status – enable or disable the input to make it visible or not, so only those you use are visible for easier input selection
  - Alias – edit the alias, or rename, each input to give it a specific name, for easier identification
  - Auto-sense – enable auto-sense to determine which inputs will be automatically selected when a signal is detected
  - Volume – choose between variable or fixed volume, allowing any input to pass through the preamp stage to connect directly to the amplifier for use of within a home theater system configuration. Or fixed gain setting allows for any input to be use in a theater or surround sound pass through configuration
  - Input Gain – adjusting the input gain so that all inputs to be at the same relative volume level, and as result the ability to raise or lower overall gain for preferred output volume setting
- 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
  - Digital output – to select between 48kHz and 96kHz settings for the digital output from analog inputs, as some devices in your system might not be compatible with the default 96kHz output.
- 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 up – enables auto-sense to wake up the device from standby upon detecting an input signal source
  - Factory reset – allows for the device to be returned to factory default settings

### Power Supply Section



A switch mode supply is used in standby mode, being turned completely off when the linear power supply takes over to provide clean, noise free power during normal operation.

### Digital to Analog Conversion (DAC) Technology

To allow for playback of virtually any digital source with absolute accuracy and musicality, the PRE35 Prisma's refined DAC stage recreates high-resolution sound that is as close as possible to the original source.

The DM36 DAC stage is a completely new and thoroughly designed digital to analog converter, with resolution of up to PCM 384 and DSD 256, utilising an ESS ES9068A chipset that incorporates the critically acclaimed ESS patented HyperStream®II architecture, QUAD DAC™ technology, Time Domain Jitter Eliminator, and advanced SABRE HIFI® technology, thereby significantly improving overall performance over its predecessor DM35, providing a sound that is more richly detailed and lifelike, with more precise three dimensionality within a larger soundstage.

Additionally, the DM36 provides full MQA processing capabilities with both Prisma and Primare CD sources.

This means that, with the associated Prisma application update, embedding both Qobuz and Tidal, the Prisma models listed above with the DM36 module will allow for the final MQA unfold to 384 kHz when playing Tidal Master files. Noting that for all other Prisma models, including those using the DM35 DAC module, the update will allow for the first full MQA unfold to resolution up to 96 kHz, Qobuz resolution up to 192 kHz, and gapless playback for both platforms.

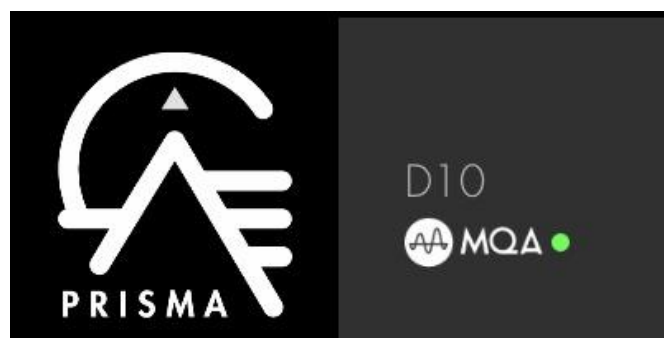
In our CD players and transports, MQA CD playback is supported with CD15 Prisma DD15, CD35 Prisma, and DD35 when using Toslink optical or RCA coaxial digital out connection to the DM36.

MQA indication in the DAC only versions of I25, I35 or PRE35 with DM36 the OLED display will show:

- MQA – reflecting MQA
- MQA. – reflecting MQA STUDIO

In the Prisma versions of I25, I35 and PRE35 the OLED will show as above as well as in the lower left of the Prisma app main page as below:

- MQA GREEN DOT – reflecting MQA



- MQA BLUE DOT – reflecting MQA STUDIO



‘MQA Studio’ (blue light) gives confirmation directly from mastering engineers, producers, or artists to their listeners, authenticating that the sound you are hearing is exactly as played in the studio when the music was completed and, by implication, that this is also the definitive version of the recording at that point in time.

‘MQA’ (green light) indicates that although the stream is a genuine MQA file, provenance may be uncertain or that it is not yet the final release.

**Note:** the DM35 DAC module is now discontinued and no longer available either separately or as part of a DAC or Prisma model.

## Connectivity and Control Technology

### Prisma

Prisma provides multi-room/multi-zone connectivity and control for playback of stored and streamed media, wired or wireless, all managed from a mobile device through a dedicated system control app. In addition to Bluetooth®, AirPlay, and Spotify Connect (Spotify HiFi by future update), Roon Ready (by future update), Prisma features Chromecast built-in, a unique streaming portal allowing effortless direct connection to hundreds of streaming applications, now including Roon endpoint, 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
- Multi-room multi-zone control between other Prisma enabled devices
- Playlist and queue functionality from connected LAN storage devices
- Wake up on cast 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 802.11ac compliant)
- Streaming
  - AirPlay – 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.
  - 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.
  - Roon Ready - functionality allows for the use of Roon’s sophisticated digital music management software. Roon transforms the experience of browsing music. In addition to music browsing, Roon is a multi-room, multi-user networked audio platform built, to the exacting standards of audiophiles. It offers features like bit-perfect playback, DSD and PCM up-sampling, and signal path display.
  - 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 I35 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.

### **WiSA Wireless Speaker Connectivity**

Unique to a high-performance preamplifier, PRE35 Prisma includes WiSA wireless speaker connectivity. WiSA features:

- High Resolution Audio Quality - WiSA transmits 24bits at 48kHz/96kHz
- Nearly Zero Latency – less than 1/10th the latency of Bluetooth audio devices
- Immediate Synchronization – speaker sync in less than 1/1,000,000 of a second

### **PRE35 Modular Stereo Preamplifier Platform Specifications**



## Preamplification

### Analogue Inputs:

- 2 pair XLR (L&R)
- 3 pair RCA (L&R)

Input Impedance: RCA 15k $\Omega$ ; XLR 30k $\Omega$

### Preamplifier Output:

- 2 pair XLR (L&R)
- 1 pair RCA (L&R)

Line Output: 1 pair RCA (L&R)

### Output Impedance:

- Pre: RCA 100 $\Omega$ ; XLR 400 $\Omega$
- Line: 100 $\Omega$

Frequency Response: 20Hz – 20kHz +0.1/-0.1 dB

THD + N: < 0.01%, 20Hz – 20kHz

Signal to Noise: >105 dB

### Gain:

- RCA in / RCA out: 16.5dB
- XLR in / XLR out: 16.5dB
- RCA in / XLR out: 22.5dB
- XLR in / RCA out 10.5dB

WiSA high resolution wireless speaker output

## DM36 Digital to Analog Conversion

Chip set: ESS ES9068A

### Inputs:

- 4 x TOSLINK (optical) up to 192kHz/24 bit
- 2 x RCA up to 192kHz/24 bit
- 1 x USB-B up to 384kHz/32 bit; DSD 256/11.2MHz

Digital Output: 1 x RCA

- Analog input = 96kHz output
- Digital input = pass through, if up-sampling is disabled

### Frequency response:

- 44.1kHz +0,1 / -0,4 dB 20Hz - 20kHz
- 48/96/192kHz +0,1/ -0,2 dB 20Hz-20kHz

## SM35 Prisma network player

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



#### Inputs:

- USB-A: up to 192 kHz/24 bit; DSD 256/11.2MHz
- Airplay®
- Bluetooth®
- Chromecast built-in®
- Roon Ready®
- Spotify Connect®
- 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 a/b/g/n/ac compliant; 2.4/5GHz; b, g, n mode
  - Data transfer rate: maximum of physical layer rate of 390 Mbps

#### Frequency Response:

- Analog: 20Hz – 20kHz -0,5dB
- Digital:
  - 44.1kHz 20Hz – 20kHz +0.1/-0.6dB
  - 96kHz 20Hz – 20kHz +0.1 /-0.2dB
  - 192kHz 20Hz – 20kHz +/- 0.1dB

#### General

##### Control:

- C25 system remote control
- RS232
- IR in/out
- Trigger out

##### Power Consumption:

- Standby: <0.3W ECO Mode; <5W Wake Up Mode
- Operate: <37W

##### Dimensions (wxdxh):

- 430 x 420 x106 mm with knobs and connectors
- 430 x 382 x106 mm without knobs and connectors

Weight: 11.3 kg

Color Options: Black and Titanium

*Note: features and specifications are preliminary and subject to change.*

