

Design Brief - CD35 Compact Disc Player



CD35 CD player combines a state-of-the-art TEAC dedicated CD drive, all-new reference balanced DAC stage feeding a finely tuned balanced analog output stage (with selectable fixed or variable output. Each component part of the CD35 Prisma – the drive, the DAC, and the output stage – contributes to what is simply the best CD player Primare has ever offered.

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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.

Drive Technology

The TEAC CD 5020A-AT is an isolated transport that is adjustable for precise, smooth tray loading, and low clamp noise. An internal interphase I2S and SPDIF digital audio interface combined with buffered memory is utilized for improved performance.

Digital to Analog Conversion (DAC) Technology

In order to allow for playback of virtually any digital source with absolute accuracy and musicality we have selected the state-of-the-art ES9028PRO SABRE digital-to-analog converter (DAC), a 32-bit, 8-channel PRO series DAC based on ESS patented HyperStreamDAC technology for outstanding performance with 129dB dynamic range (DNR), and -120dB total harmonic distortion plus noise (TH+N). The ESS chip is used in a balanced D/A conversion scheme that feeds a discrete analog output stage with a hand selected FET input section.

Power Supply Technology

A customer linear power supply is combined with a switch mode standby supply (turned off when in playback mode to minimize noise) to deliver on demand the precise power needed.

CD35 Rear Panel



System Building



The optional configuration of the CD35 is but one example of Primare's practical design approach extending not only to the individual components we make, but also to the system building options designed into each model. For example, if putting together a full-featured digital and analog system based on the I35 integrated amplifier and CD35 platforms, a number of pairing options. Two possible combinations are detailed below:

I35 + CD35

Pairing the of I35 and CD35 offers certain advantages for improved performance, in part due to the industry standard ESS Sabre chipset employed in the DAC stage of the CD35 being able to provide subtly superior performance over the AKM chipset based DAC stage in the I35 DAC. Additionally, the separation of the all-analog amplification circuitry in the I35 from the digital circuitry in the CD35 isolates those sections for lower noise floor and improved power supply delivery.

I35 DAC + DD35

For those who wish to have a single control and connectivity center, the I35 DAC can be paired with the soon to be released DD35 CD disc drive. The DD35 is a transport only device, with digital outputs only and no DAC stage, and is perfect to provide the best digital signal for conversion by the I35 DAC.

CD35 + powered loudspeakers

By connecting a pair of powered loudspeakers to the CD35 Prisma and selecting the variable output option allows for the creation of a compact high-performance CD disc based music system.



CD35 Compact Disc Player Specifications

Compact Disc Player

Mechanism: TEAC CD 5020A-AT

D/A converter: ESS Sabre ES9028PRO

Analog outputs – selectable fixed and variable:

- 1 pair RCA, 2.2 Vrms
- 1 pair XLR, 4.4 Vrms

Output impedance:

- RCA 370 Ω
- XLR 100 Ω

Digital outputs:

- 1x RCA
- 1x TOSLINK

Frequency response: 20Hz – 20 kHz -0.3dB

Signal to Noise: -110dB/AES17

THD + N: 20Hz – 20kHz <0.01%

General

Control

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

Power consumption:

- Standby 0.5W
- Operation 25W

Dimensions: (wxdxh)

- 430 x 385 x 106 mm with buttons and connectors
- 430 x 382 x 106 mm without buttons and connectors

Weight: 10.6 kg

Color options: Black or Titanium

