

VRDS-NEO "VMK-3.5-20S" K-01 transport mechanism

ESOTERIC's proprietary VRDS-NEO transport mechanism uses a high-precision turntable for spinning Super Audio CD/CD discs, improving read precision by mechanically correcting for surface run-out.

The K-01 uses an evolutionary version of the mechanism configuration adopted for the P-03 SACD/CD transport and now includes the VRDS-NEO "VMK-3.5-20S." This new VRDS mechanism includes further refinements in the design of the driver circuit. The disc tray loader includes a shutter mechanism, designed to reduce extraneous noise and airborne contaminants from entering or degrading the electromechanical operation of the system.

The VRDS-NEO "VMK-3.5-20S" is a new high-quality mechanism using a set of ceramic ball spindle bearings. A duralumin turntable with micron-level accuracy and a 20 mm steel turntable bridge are used, resulting in a total weight of 5.2 kg (11.5 lbs). Additionally, the proven features of the VRDS-NEO, such as the strong neodymium-magnet-driven coreless three-phase brushless spindle motor, the thread feed control, and the shaft-sliding type pickup, where the laser beam consistently illuminates the disk perpendicularly, are all inherited by the K-01.

New VS-DD spindle servo driver circuit


The VS-DD (VRDS Spindle Discrete Driver), a newly designed discrete amplifier circuit, is used to drive the spindle motor, which is the core of

the VRDS-NEO "VMK-3.5-20S". The discrete amplifier circuit optimizes the power supply output to the motors, realizing a smoother and more refined spindle drive. This amplifier circuit has its own isolated power supply circuit and transformer, to eliminate any impact on the audio circuit and to achieve outstanding playback performance.

Dual mono D/A converters

The K-01's D/A converter circuits are based on the circuitry of ESOTERIC's high-end monaural D-01 D/A converter, providing a parallel/differential output with eight DAC circuits per channel. This achieves overwhelming linearity and an ultra low distortion factor.

The DAC chipset used is the ASAHI KASEI Microdevices Corporation's top-end 32-bit AK4399. The 8, 32-bit D/A converters, are mounted on a separate analog audio board for each of the left and right channels. All components, including the power circuit and power transformer, are separated for right and left channels, achieving a fully dual mono analog output configuration with the same layout for each of the two channels. They boast an ideal power supply capacity, excellent channel separation and high-quality playback with rich localization and sonic depth.

(*1) AK4399 is the Audio4pro. and  Audio4pro. is a branded product of ASAHI KASEI MICRODEVICES CORPORATION that is designed for professional studio and digital audio applications.

Digital Source Device K - 0 1

Digital Source Device K - 0 3

VRDS-NEO "VMK-3.5-10" K-03 transport mechanism

The K-03 uses an evolutionary version of the mechanism configuration adopted for the X-03SE SACD/CD player and now includes the VRDS-NEO "VMK-3.5-10." This new VRDS mechanism includes further refinements in the design of the driver circuit. The all-new driver circuit specifically for SACDs and CDs, enables smooth, high-precision servo control. A duralumin turntable with micron-level accuracy and a 10 mm steel turntable bridge are used, resulting in a total weight of 4.4 kg (9.7lbs).


The proven features of the VRDS-NEO, such as the strong neodymium-magnet-driven coreless three-phase brushless spindle motor, the thread feed control, and the shaft-sliding type pickup, where the laser beam consistently illuminates the disk perpendicularly, are all inherited by the K-03.

Dual mono D/A converters based on the philosophy of the K-01

The K-03's D/A converter circuits are based on the circuitry of the K-01, providing a parallel/differential output with four DAC circuits per channel. This achieves overwhelming linearity and an ultra low distortion factor.

The 4, 32-bit AK4399 D/A converters, are mounted on a separate analog audio board for each of the left and right channels and configured for dual mono analog outputs with the same layout for each of the two channels.

The power supply has toroidal transformers specifically used for the analog audio circuits. The transformers boast an ideal power supply capacity that is separate from the transport power supply, achieving excellent channel separation and high-quality playback with rich localization and sonic depth.

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Digital Source Device K-01



Digital Source Device K-03



The K-01/K-03 comes with a remote control unit that is finished in leather and has an aluminum body with weight balanced for ease of use.

Specifications

Compatible disc types	Super Audio CD, CD (CD-R/CD-RW compatible)
Analog audio output	
Jacks	XLR jacks (2 channel) x 1 / RCA jacks (2 channel) x 1
Output impedance	XLR: 100 Ω / RCA: 47 Ω
Maximum output level (1 kHz, full scale, 10 kΩ)	XLR (Gain: 0 dB): 2.45 Vrms / RCA: 2.45 Vrms
Frequency response	5 Hz to 55 kHz (−3 dB)
Signal-to-noise ratio (S/N)	115 dB
Total harmonic distortion	0.0015% (1 kHz)
Digital audio output	
Coaxial RCA jack x 1	0.5 Vp-p/75 Ω
Digital audio input	
Optical digital terminal x 1	−24.0 to −14.5 dBm peak
Coaxial RCA terminal x 1 (input impedance 75 Ω)	0.5 Vp-p
USB port – B connector	USB 2.0
Word synchronization input format	
Jack	BNC
Input impedance	75 Ω
Input level	Rectangle wave: equivalent to TTL levels Sine wave: 0.5 to 1.0 Vrms/50 to 75 Ω
The K-01/K-03 can accept and synchronize to the following frequencies received from external clock devices: 44.1 kHz, 88.2 kHz, 176.4 kHz, 10 MHz (±15 ppm)	
D/A Converter	
K-01	32bit AK4399 x8 DACs / ch
K-03	32bit AK4399 x4 DACs / ch
General	
Power supply	Europe model. AC 230 V, 50 Hz U.S.A./Canada model. AC 120 V, 60 Hz Korea model. AC 220 V, 60 Hz
Power consumption	K-01: 33 W / K-03: 27 W
External dimensions (W x H x D)	445 x 162 x 438 mm (17 1/4" x 6" 3/8 x 13 1/4") (including protrusions)
Weight	K-01: 31 kg (68 3/8 lb) / K-03: 28 kg (61 3/4 lb)
Operating temperature	+5 °C to +35 °C
Operating humidity	5 % to 85 % (no condensation)
Storage temperature	−20 °C to +55 °C
Accessories	
Remote control unit (RC-1156) x 1	Batteries (AA) x 2
Power cord set x 1	Felt pads x 3
Owner's manual (this document) x 1	Warranty card x 1

- Design and specifications are subject to change without notice.
- Weight and dimensions are approximate.
- Illustrations may differ slightly from production models.



K-01 / K-03

ESOTERIC

Digital Source Device K-01 / K-03



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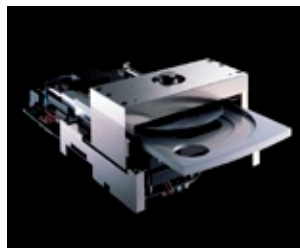
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Digital Source Device

K-01



A new reference standard digital source



VRDS-NEO [VMK-3.5-20S]

Distilling 7 years of unique heritage of the X-01 series, and applying all new evolutionary technologies, a new flagship digital source; the K-01 was born. The K-01 has an extremely precise VRDS-NEO "VMK-3.5-20S" transport, Eight DAC circuits per channel with 32-bit processing capability, high-sampling-rate digital inputs, newly advanced clock circuitry, and highly robust power supply system with four power transformers. The K-01 is a new reference grade high-end digital source device presented by ESOTERIC.

Digital Source Device

K-03

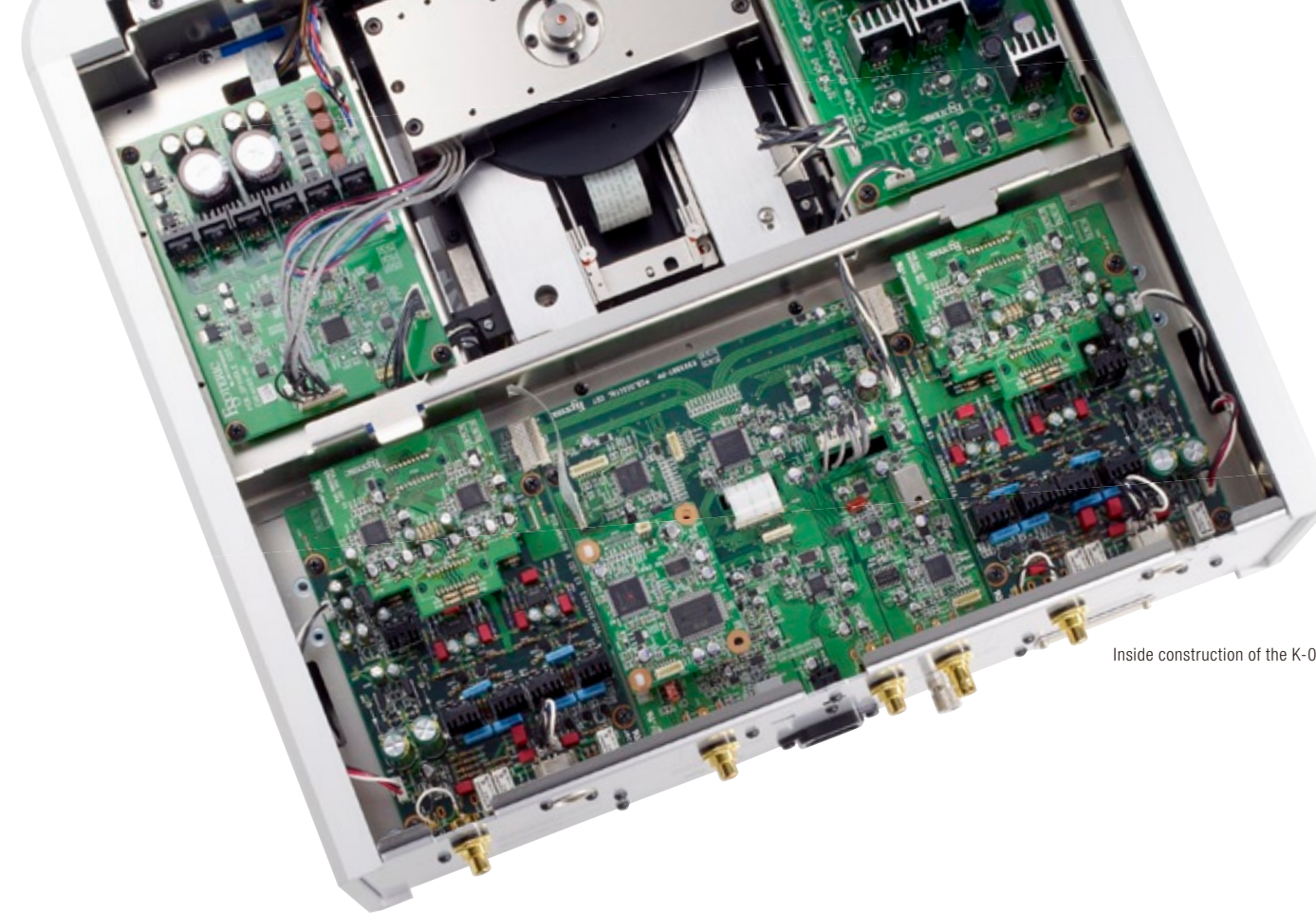


A high performer



VRDS-NEO [VMK-3.5-10]

The K-03 shares most of the essential technologies with the K-01. The technological highlights of the K-03 are a high precision VRDS-NEO "VMK-3.5-10" transport, four DAC circuits per channel with 32-bit processing capability, high-sampling-rate digital inputs, newly advanced clock circuitry, and a highly robust power supply system with two power transformers. The K-03 is designed without compromising anything to achieve a new reference level in sound quality. The K-03 is a true high performer.



Inside construction of the K-01 (top)



Inside construction of the K-01(bottom)

■ High-quality discrete buffer circuit

A discrete buffer output circuit with a high voltage power supply of +/- 22 V has been deployed for the analog audio output stage to achieve high drive capability, providing stress-free playback. These powerful discrete buffer circuits are laid out symmetrically for each of the hot/cold signal lines to construct a fully balanced configuration for XLR audio outputs. The cold signal line is switched to hot when the RCA output is selected to perform as a paralleled buffer amplifier, making full use of this rich dual buffer circuit layout. These enhancements provide the best sound quality for each of the balanced and unbalanced audio signal outputs.

■ D/D conversion functions

D/D conversion functions include a mode to convert DSD and PCM formats directly into analog signals, as well as PCM up-conversion to x 2 or x 4 from the original sampling frequency, and even a PCM to DSD conversion function is available.

PCM signals from CD and/or external digital devices:

- Original Fs (32/44.1/48/88.2/96/176.4/192 kHz)
- x 2 (64/88.2/96 kHz) / x 4 (128/176.4/192 kHz) up-conversion
- PCM to DSD conversion

SACD DSD signals:

- DSD native playback

■ Four types of digital filters and digital filter "Off" mode

The K-01/K-03 features four types of digital filters for PCM signal processing. In addition to two types of FIR digital filters, two types of short delay digital filters are featured. These filters, often referred to as apodizing filters, eliminate the pre-echo and ringing effects in the impulse waveform to reproduce the audio signal as a more nature and precise sound, void of

the artifacts often associated with CD mastering. The Digital Filter Off mode, which bypasses all 4 of the digital filters, is also provided.

■ Three sets of high sampling rate digital inputs

When you use the K-01/K-03 as a discrete D/A converter for a high-sampling-rate source, the K-01/K-03 makes the most of the astonishing quality of its 32-bit dual mono D/A converters. The K-01/K-03 features three systems of digital input (USB, coaxial and optical), and these digital inputs support high-sampling-rate sources up to 24 bit/192 kHz. This is in addition to SACD/CD playback functions. When in stop mode different digital sources are selectable by remote control.

■ USB input supports asynchronous transmission and 24 bit/192 kHz sources

High-sampling-rate sources of studio master quality can be input at their original resolution, by connecting the K-01/K-03 to your PC through a USB port. ESOTERIC developed proprietary driver software (the driver software can be downloaded from the ESOTERIC web site). The USB input supports high-quality asynchronous transmission and the input of high-sampling-rate sources to 24 bit / 192 kHz. Three transmission modes, including two types of high-speed transmission (including asynchronous transmission), and the standard full-speed mode, are also provided. (HS1 and HS2). Additionally, an Esoteric USB isolator, isolates the power and signal paths from the USB input system. This isolator eliminates interference from external devices, including the PC, to clearly reproduce high-resolution music files without any interference or loss of fidelity.

* Note: Reproducible formats depend on the music player capabilities installed on the PC.

■ VCXO high-precision clock

A newly designed high-precision clock is implemented to achieve the highest level of sound quality for an all-in-one digital player. A VCXO (voltage controlled crystal oscillator) of +/- 0.5 ppm (*2) that uses a large crystal is deployed in the K-01/K-03 for advanced sound quality. A stabilized power

supply circuit improves the stability of the new clock. When using the K-01/K-03 without using an external WORD clock, the high precision audio clock signal generated by the VCXO is directly delivered to the D/A converter, without passing through the PLL circuit. This enables higher-quality reproduction, substantially reducing any audible jitter. (*2) Factory setting

■ WORD sync function

The K-01/K-03 has a WORD sync function to synchronize with an external WORD clock. This allows upgrading to a higher-quality sound system by connecting the unit to a high-precision master clock generator, such as the G-0Rb rubidium master clock. As for supported clock sync frequencies, 10 MHz is newly supported in addition to 44.1/88.2/176.4 kHz.

■ 32-bit precision digital attenuator function

This function enables 32-bit digital processing and a high-precision volume control, capitalizing on the 32-bit D/A devices. 32 bits gives an allowance of 8 bits over the standard 24 bits, and enables control of volume with no degradation of sound quality often caused by dropouts. This function provides the K-01/K-03 a direct connectivity to your power amplifier for those who wants to use their hi-fi system without a preamp.

■ Excellent usability

The output voltage of the XLR audio outputs can be switched according to the input sensitivity of the amplifier that you connect to the K-01/K-03 (0dB/ +6dB). You can also choose Hot 2 or Hot 3 for the XLR pin assignment. Additionally, you can switch the analog output between RCA, XLR and OFF. The K-01/K-03 features one coaxial digital output to support digital output of CDs, and a pass-thru output for an externally input signal; however, digital outputs for SACDs (DSD data streams), and the signal after the D/D conversion are not supported. For noise reduction purposes, it is possible to switch the circuit off when not using the digital output.

■ Chassis construction with a separate compartment for each circuit block

The large-mass VRDS-NEO transport mechanism is positioned in the center of the unit, directly attached to the 5 mm steel bottom chassis, and supported at three points by ESOTERIC's proprietary pinpoint feet (Patent No. 4075477). This 3 point system effectively suppresses the vibration of the rotation mechanism with large inertia.

The interior of the chassis has a double-decker structure with five compartments. Each circuit block is contained within its own compartment to minimize conflicts between circuits. Two separate audio boards for each channel are mounted on the rear part of the upper compartment, which is nearest to the rear terminals, to ensure the shortest possible signal path. The audio power circuit and power transformers are isolated from the audio board by an internal steel chassis plate, and hung inside the compartment on the bottom of the audio board. Such a three-dimensional layout allows the shortest wiring possible for the power supply, and minimizes any impact of magnetic flux leakage and vibration. The K-01 features four large-capacity proprietary toroidal transformers, including two for the built-in monaural D/A converters, one for the digital circuit, and one for the VS-DD spindle servo driver circuit.

The K-03 features two large-capacity proprietary toroidal transformers, including one specifically used for the built-in dual mono D/A converters and the audio circuits, and the other for driving the digital circuit and VRDS mechanism. The massive power supply design of the K-01/K-03 provides maximum power supplying capability to all circuit blocks.

■ Beautiful rounded form

The K-01 inherits its appearance from the design of ESOTERIC's flagship line of separate digital players and DACs, with the front/side/top panels made of thick aluminum and a rounded form with no screws on the top panel and corners. This form is sure to give you a feel of elegance and pleasure of ownership, in addition to eliminating any unwanted vibrations or resonacne that are well known from top and corner screw designs.