

# ESOTERIC

Super Audio CD / CD Transport **P-02**

35bit Dual Mono D/A Converter **D-02**



Delivers a stress-free musical experience  
in its original form to listeners.

*Esoteric's P-02 SACD/CD transport and D-02 system DAC,  
aim at the highest level of audio performance.*

*This is only possible using separate audio components,  
based on the company's evolving product design concepts.*

*The P-02 and D-02 have incorporated a number of new technologies  
such as "ES-LINK3" and "35-bit D/A processing."*

*The P-02 and D-02 are new design implementations from Esoteric,  
which are totally dedicated to evolving the critical listening  
experience for music enthusiasts.*



P-02 Super Audio CD / CD Transport



D-02 35bit Dual Mono D/A Converter

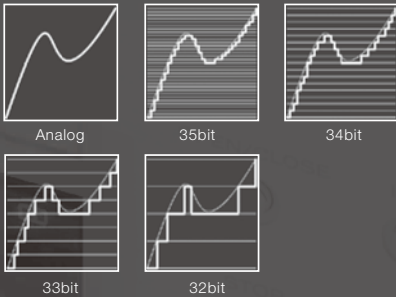
## A new digital link: "ES-LINK3"

The P-02 and D-02 have support for Esoteric's original transmission format "ES-LINK3" and can perform a maximum 48-bit/176.4kHz broadband PCM digital transmission (\*1) using two XLR cables. These models also have support for "Dual AES 8Fs" standard (maximum 24-bit/352.8kHz) (\*2). These models can also perform conventional Direct Stream Digital (DSD) transmission and direct DSD-to-analog conversion processing for Super Audio CD (SACD) playback.

\*1 The D-02 can handle inputs of signals up to 48-bit/192kHz. \*2 The D-02 can handle inputs of signals up to 24-bit/384kHz.

## 35-bit D/A processing (patent pending)

The D-02 applies a completely new technology, "35-bit D/A processing" (patent pending) algorithm. This process enhances the reproduction of analog waveforms by implementing even finer bit gradation. In comparison with 24-bit data processing, 32-bit processing can theoretically have 256 times higher resolution. 35-bit processing is 8 times higher than the resolution of 32-bit processing, that is 2,048 times higher than the resolution of 24-bit processing. The final analog output signal has a very smooth sound quality with ultimate resolution, and a distinctive power of expression, even for extremely small signal levels.

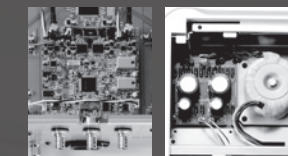
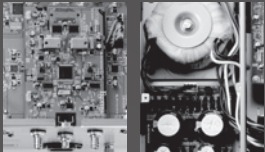


## Abundant use of high-grade components in design

Esoteric has made maximum use of high-grade components for the internal construction of the P-02 and D-02. A total of eight independent Esoteric toroidal core power supply units are installed in the combined system to supply clean and stable power to each circuit. The inside of the chassis has our multiple layer structure that is partitioned into 5 sections. Each circuit block is assembled in a dedicated compartment and placed three-dimensionally, in order to minimize interference between circuits and to achieve the shortest signal paths. The exterior is constructed with aluminum and a 5mm gauge steel bottom chassis, supported at four points with Esoteric pinpoint feet (patent No. 4075477). This four-point system effectively suppresses vibration, reduces resonance and assures extremely high rigidity.

# ADVANCED TECHNOLOGIES

Clock module and Power supply (P-02)



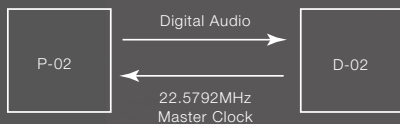
Clock module and Power supply (D-02)

## Isolated clock technology

The P-02 and D-02 adopt an isolated clock technology that completely isolates the clock circuit from other circuit blocks. The clock module is equipped with a dedicated toroidal core power supply. The ground of the clock module is isolated from other circuits. As a result, this module can supply pure clock signals to the system by completely minimizing the occurrence of random jitter that results from power voltage or ground voltage fluctuations.

The clock module adopts high accuracy ( $\pm 0.5$ ppm, at our factory prior to shipment) Voltage Controlled Crystal Oscillators (VCXO). DAC modules and clock module are hard-wired using special coaxial cable supplied with gold-plated SMA connectors, keeping transmission losses of the audio clock to an absolute minimum.

## Direct master clock Link without PLL



The clock sync between transport and DAC is a well established jitter reduction system, but further advanced with a new technology called the "Direct Master Clock Link".

With the previous clock sync system, the reference clock (master clock) of the digital audio output is generated by the transport, being synchronized to D/A processing by using PLL (Phase Locked Loop) circuits. Esoteric's new "Direct master clock link" system is simpler and more consistent for clock signal integrity. The 22.5792MHz master clock generated by the DAC is supplied directly to the transport, therefore there is no need for re-clocking at the PLL circuit. Pure and direct clocking makes sound much clearer with more accurate focus and imaging.

## 10MHz clock input / wide-ranging clock options

A conventional WORD clock (44.1kHz, 88.2kHz, and 176.4kHz) sync setting is also selectable, and the system can be upgraded by adding Esoteric's external rubidium master clock generator. Both the P-02 and D-02 are equipped with a 10MHz master clock input jack for connecting a 10MHz-output clock system. You can connect the units to a wide variety of optional external clock generators for upgrading incrementally to a higher quality Esoteric sound system.

Super Audio CD / CD Transport

# P-02

## The ultimate music transport

### VRDS-NEO "VMK-3.5-20S"

The P-02 is equipped with the Esoteric-original VRDS-NEO "VMK-3.5-20S" transport mechanism. This mechanism enhances read-out accuracy by using a high-precision turntable which corrects the "wobbling effect" of the disc during rotation. The disc tray loader is provided with a shutter mechanism to further reduce resonance and airborne particles from entering the transport.

The VRDS-NEO "VMK-3.5-20S" transport mechanism uses a pair of ceramic ball bearings in the spindle shaft bearing assembly. The P-02 has adopted a duralumin turntable with micron-level accuracy and a 20mm-thick steel turntable bridge assembly to achieve a total weight of 5.2kg. The P-02 has a well proven mechanism, including a strong neodymium-magnet-driven, coreless, three-phase brushless spindle motor, thread feed control, and a sliding-shaft pickup that assures the laser beam is always precisely aligned at right angles to the disc.

### Spindle servo driver circuit "VS-DD"

The P-02 has adopted a discrete amplifier circuit called "VS-DD (VRDS Spindle Discrete Driver)" for driving the spindle motor. A dedicated toroidal core power supply unit stabilizes power current to the motor, achieving both a very smooth spindle rotation and highly precise servo control. Thanks to the isolated motor design, digital audio circuits are free from noise and from power supply fluctuation potentially caused by high current motor operation.

### Various digital output terminals

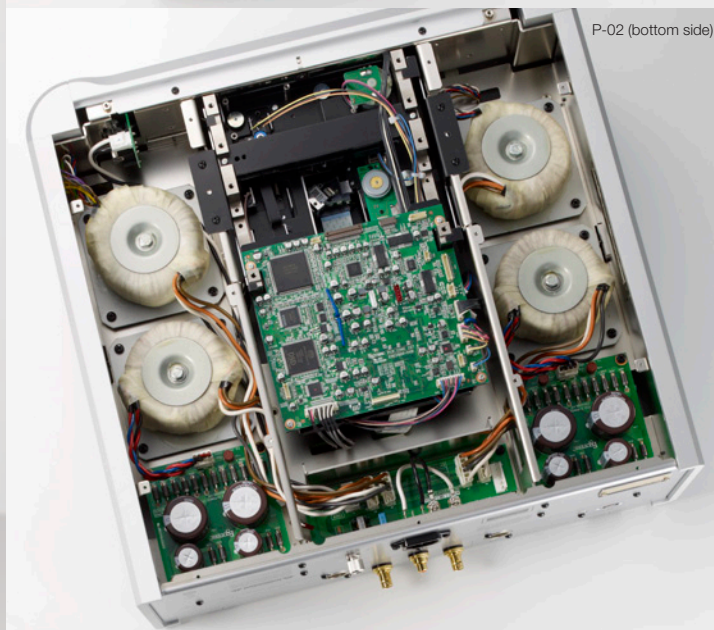
The P-02 transport is equipped with output terminals of three types and five channels (XLR x2, coaxial x1, iLINK 4p/6p x1 each), including an ES-LINK3 compliant dual XLR terminal for user connections to a wide range of external equipment.



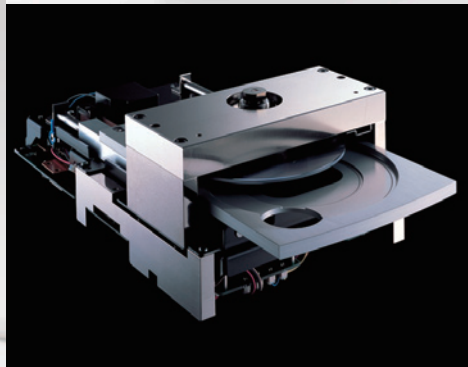
The front panel is provided with a loading indicator lamp that illuminates in blue when a disc is inserted into the unit. The indicator lamp remains on during the loading process.



P-02 (top side)



P-02 (bottom side)



VRDS-NEO "VMK-3.5-20S"



Aluminum body and leather-finish remote control

## 35bit Dual Mono D/A Converter

# D-02

## The state-of-the-art, 35 bit resolution

parallel unbalanced buffer amp," configuration when RCA outputs are selected. The D-02 offers an exceedingly high drive capability by means of a low-distortion and high linearity Class A buffer amplifier and a high-voltage toroidal core power supply unit of +/-22V.

### Wide-ranging D/D conversion functions

The D-02 provides a wide variety of D/D conversion modes for the PCM format, including x2 and x4 up-conversion, and PCM-to-DSD conversion, in addition to original frequency, native data PCM processing.

### Four types of digital filters and digital filter OFF mode

The D-02 has four types of user selectable digital filters for PCM signal processing. Two types of short-delay digital filters and two types of Finite Impulse Response (FIR) digital filters are included. These short-delay digital filters eliminate the pre-echo effect in the impulse waveform to reproduce a more natural audio signal. A digital filter OFF mode is also available.

### Five digital input systems for high sampling rate support

The D-02 is equipped with wide-ranging digital inputs of five types for eight channels (XLR x2, iLINK 4p/6p x1, USB x1, coaxial x2, and optical x1). The D-02 can be used for high-sampling-rate sources of up to 24-bit/192kHz. XLR x2 provides additional support for high-sampling-rate/high-bit inputs of 48-bit/192kHz (ES-LINK3) and 24-bit/384kHz (Dual AES 8Fs).

### Asynchronous, 24-bit/192kHz USB input

Esoteric provides original PC driver software to support asynchronous, 24-bit/192kHz high resolution data input through its USB interface. The internal USB isolator prevents interference from PC generated noise and enhances studio master-quality digital source playback performance. Both 32 bit and 64 bit PC operating systems are supported for asynchronous USB transmission.

### High-precision digital volume attenuator

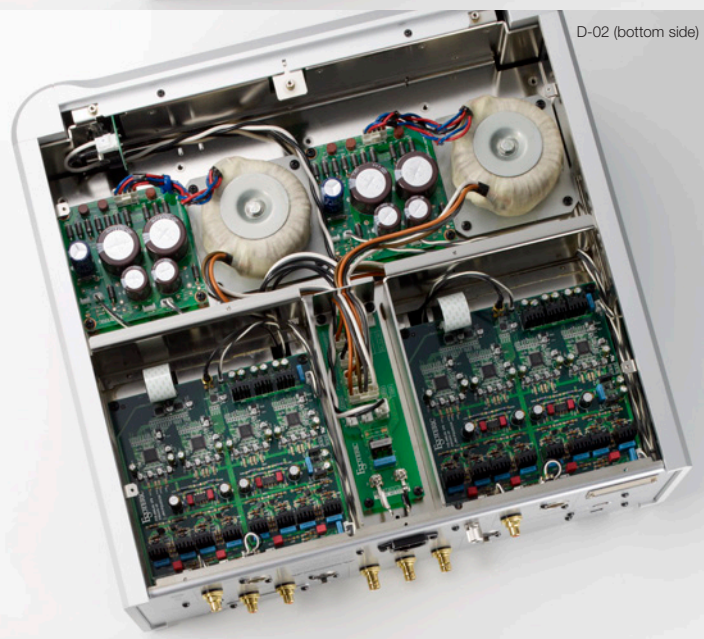
The D-02 is implemented with a high quality 32 bit digital volume attenuator function, and can be directly connected to a power amplifier.

### Excellent usability

The D-02 can switch the output voltage of XLR audio outputs in accordance with the input sensitivity of the amplifier (0dB/+6dB). Either Hot 2 or Hot 3 can be assigned for XLR audio outputs.



D-02 (top side)



D-02 (bottom side)

### "35-bit D/A processing" dual monaural D/A converter

The D-02's D/A converter ICs incorporate top-end 32-bit AK4399 chipsets by ASAHI KASEI Microdevices Corporation. Eight circuits per channel are provided to achieve phenomenal linearity and low noise. In addition to direct processing of DSD signals, the D-02 has newly adopted a "35-bit D/A processing" algorithm that converts PCM signals to analog signals, at a high resolution of 35 bits. As a result of this new technology, the D-02 achieves an improved level of delicate sound quality and imaging with ultra high resolution.

The D/A converter circuits are mounted on separate analog audio boards for each of the left and right channels. All components, including the power circuits and power transformers, are separated for right and left channels to implement a fully dual monaural configuration. This identical layout per channel, achieves ideal power supply performance and excellent channel separation, enabling high-quality playback with a deep and wide soundstage.

### Low distortion, high linearity, discrete Class A buffer

The D-02 features fully discrete Class A buffer amplifiers with four circuits per channel, which is twice the amount of components used in the K series players. These extended buffer circuits are configured as a "double-parallel fully balanced buffer amp," when the XLR outputs are selected, and switched to a "quadruple-

## Super Audio CD / CD Transport P-02 Specifications

Compatible disc types	Super Audio CD, CD (CD-R/CD-RW compatible)		
Digital Audio Output	XLR output	x 2 (Use 2 terminals for Dual AES output)	
	i.LINK (AUDIO) output (6-pin)	x 1	
	i.LINK (AUDIO) output (4-pin)	x 1	
	RCA coaxial output	x 1	
	i.LINK output format (CD)	IEC60958	
Word synchronization input format	Jack	BNC x 2	
	Word synchronization frequencies	Input	44.1 kHz, 88.2 kHz, 176.4 kHz, 10 MHz, 22.5792 MHz
		WORD IN	75 Ω
	Input impedance	10MHz IN	50 Ω
		WORD IN	TTL levels
	Input level	10MHz IN	Sine wave: 0.5 to 1.0 Vrms
	Input frequency range	±15 ppm	
General		AC 230V 50Hz	
	Power supply	AC 120V 60Hz AC 220V 60Hz	
	Power consumption	25 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	31 kg (68 3/8 lbs)	
Accessories	Remote control unit (RC-1156) x 1, Batteries (AA) x 2, Power cord set x 1, Felt pads x 4		
	Owner's manual x 1, Warranty card x 1		



Super Audio CD Transport P-02



35bit Dual Mono D/A Converter D-02

## 35bit Dual Mono D/A Converter D-02 Specifications

Analog audio output	Terminals	XLR (2 channels)	x 1	
		RCA (2 channels)	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(when 192kHz PCM signal input)	5 Hz to 55 kHz (.3 dB)		
	Signal-to-noise ratio (S/N)	115 dB		
	Total harmonic distortion	0.0008% (1 kHz)		
	Digital audio input	XLR terminal	x 2 (both XLR1 and XLR2 connectors are used for Dual input)	
Input level			5.0 Vp-p	
Input impedance		110 Ω		
		32-384.8 kHz, 16-24 bit		
Dual connection		Linear PCM (Dual AES format)		
Input sampling frequencies		32-192 kHz, 16-48 bit Linear PCM (ES-LINK3 format) DSD (ES-LINK1, ES-LINK2 format)		
Single connection		32-192 kHz, 16-24 bit		
Input sampling frequencies		Linear PCM (AES/EBU format) DSD (ES-LINK1, ES-LINK2 format)		
RCA terminal		x 2		
		Input level	0.5 Vp-p	
	Input impedance	75 Ω		
	Input sampling frequencies	32-192 kHz, 16-24 bit Linear PCM (IEC60958 format)		
Optical digital terminal	x 1			
	Input level	24.0 - .145 dBm peak		
	Input impedance	75 Ω		
	Input sampling frequencies	32-192 kHz, 16-24 bit Linear PCM (IEC60958 format)		
i.LINK (AUDIO) terminal	x 2 (6-pin, 4-pin) S400			
	Input sampling frequencies	32-192 kHz, 16-24 bit, Linear PCM DSD		
USB port . B connector	x 1			
	Input sampling frequencies	32-192 kHz, 16-24 bit, Linear PCM		
PLL2 locking range	Lockable frequency range	±5 ppm for each sampling frequency		
Clock output	Terminal	BNC connector x1		
	Output level	equal to TTL level (into 75 Ω load)		
	Output frequency	44.1, 88.2, 176.4, 48, 96, 192 kHz, 22.5792, 24.576 MHz same frequency as input (when output set to thru)		
	Output frequency precision	±0.5 ppm (when shipped new)		
Clock input	Terminal	BNC x2 (WORD IN, 10MHz IN)		
	Input impedance	WORD IN	75 Ω	
		10MHz IN	50 Ω	
	Input frequency compatibility	WORD IN	44.1, 88.2, 176.4, 48, 96, 192 kHz 22.5792, 24.576 MHz (±5 ppm)	
		10MHz IN	10 MHz (±5 ppm)	
	Input level	WORD IN	equal to TTL level	
10MHz IN		0.5-1.0 Vrms sine wave		
General	Power supply	AC 230V 50Hz, AC 120V 60Hz, AC 220V 60Hz		
	Power consumption	14 W		
	Dimensions (W x H x D)	445 x 162 x 438 mm (17 1/4" x 6 3/8" x 13 1/4")		
	Weight	27.4 kg (60 2/5 lbs)		
Accessories	Power cord x 1, Felt pads x 4, Warranty card x 1, Owner's manual x 1			

# ESOTERIC

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Please note that Esoteric products are available at limited distributors in respective countries.

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Design and specifications are subject to change without notice. This product is available in three different power supply variations shown in the chart above. Make sure that the voltage shown on the rear panel matches the AC line voltage in your area. The shape of the AC inlet and plug of the supplied power cord depends on the voltage rating and destination country.

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