ESOTERIC

F-02 Integrated Amplifier

253110

The “Finest” Integrated Amplifier You Could Ever Want – The new F Series integrated amplifiers are the culmination of a range of technologies designed to fulfill your ideals. Incorporating all of the preamp and power amp developments from the flagship Grandioso “X” Edition, the new F Series integrated amplifiers deliver outstanding musicality that captures the rich textures of music in a single integrated amplifier. Despite the fact that the F Series is an integrated amplifier, it delivers a thorough quality and performance that will be the envy of all separate amp users. The F Series is the integrated amplifier that owners of Esoteric’s K and N Series digital players have been waiting for, and it pushes the boundaries of integrated amplifier technology.

PRODUCT DETAILS

The F-02 has been significantly upgraded from the previous F Series in terms of both functionality and sound quality, incorporating a number of new technologies from the development of the flagship Grandioso C1X preamplifier. The large-scale, balanced dual mono preamp comparable to a separate preamp, comes standard with three ES-Link Analog inputs that allow our proprietary current-based signal input from the Esoteric K/N Series digital source players for a live listening experience as if monitored directly from a recording studio analog console. The new F Series also features a unique "Ultra Fidelity Attenuator System", and the power supply section of the preamplifier has been further upgraded. Other key preamp features include a fully balanced headphone amplifier, dual mono phonostage preamp, and a high-quality 3-band balanced tone control.

The F-02 can also be expanded into a multi-amplifier system by connecting the S-05 power amplifier to the ES-Link Analog pre-outs. For even higher sound quality, an optional external power supply unit (to be announced) dedicated to the preamp can be connected. This unique design, which seems to contradict the integrated concept, is a testament to the F-02's high expandability and is the best proof that the built-in fully balanced dual mono preamp is designed with an uncompromising emphasis on quality.

Ultra Fidelity Attenuator System
In preamp design, the amplitude of the audio signal is proportional to the supply voltage of the active attenuator. In other words, a system with a low supply voltage will not allow sufficient amplitude of the audio signal, resulting in suppressed dynamic range and an unfavorable signal-to-noise ratio. The heart of the preamp, the attenuator circuit, features the "Ultra Fidelity Attenuator System" used in the Grandioso C1X. This proprietary Esoteric system is designed with a high supply voltage to maximize dynamics and greatly improve the signal-to-noise ratio. In addition, even though it is a stepped

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attenuator circuit, the 0.1dB/1,120 steps (more than 10 times the number of steps of a typical preamp) allow for silky smooth and detailed volume adjustment.

The UFA-1792 stepped attenuator module, is an Esoteric's proprietary module designed with advanced and super modern process technology. In order to achieve the amazingly fine step of 0.1dB, the myriad of resistors inside are manufactured under the most stringent quality control. Esoteric engineers uncompromisingly examined all materials, circuit patterns, and layout, and created independent power / ground signal paths for each circuit block inside the module to achieve high performance and high sound quality, one of the benchmarks of modern preamp module design.

Powerful Power Supply That Determines Preamp Quality
It is no exaggeration to say that the quality of a preamp is determined by the quality of its power supply. Following the philosophy of the Grandioso C1X, the power supply section has a separate power transformer winding and a rectifier board dedicated to the preamp to enhance sonic purity and driving power. In addition, the audio rectification circuit is completely independent of the logic control section to prevent noise contamination. The power rectifier uses our own Grandioso custom capacitors in a parallel configuration. Current can be charged/discharged to multiple capacitors in a time-differentiated manner, ensuring a stable and clean power supply to the preamp at all times. In addition, although the F-02 is an integrated amplifier, an external power supply (to be released at a later date) can be connected to the built-in preamp, allowing users to enjoy sound quality close to that of the Grandioso C1X, which has a separate power supply.

ES-Link Analog – Our Proprietary Current Signal Transmission
ES-Link Analog is a unique current transmission method that eliminates the influence of cable impedance and maintains sound fidelity and quality, the most important factors in signal transmission. 3 XLR inputs can be switched between ES-LINK Analog and standard XLR. The pre-outs are also equipped with two systems, ES-Link Analog and XLR, so that the ES-Link Analog connection can be used to complete the connection to the final stage of signal amplification.

Ultra-Low Noise Logic Control
The logic control section, which controls operation and display, is located in the front panel and is isolated from the amplifier module. The connection to the preamp section uses a photocoupler that converts the control signal to an optical signal and transmits it, and isolators are used to provide physical and electrical isolation. In addition, the CPU is completely shut down except during operation, so as not to interfere with the circuits that handle the audio signals.

The volume setting is automatically reset to zero when the power is turned off, and automatically returns to the original setting when the power is turned on, eliminating the need to adjust the volume when the power is turned on or off. Other features include fade-out/fade-in of the music signal when switching inputs. Our goal was to create a high-quality user interface that is elegant and fun to use.

Loss-Less Input Switching
The music signal input switching has been changed from the conventional mechanical relay system to a FET element switch. This eliminates the effects on sound quality caused by the rare metals used in the contact points, the operating noise, and the degradation of sound quality over time that were unavoidable with mechanical relays. The result is a pure tone with the transparency required of a high-end preamp.

Balanced Dual Mono Headphone Amplifier
The headphone amplifier is a major evolution from the previous F Series. To respond to new listening styles with exceptional reproduction quality, Esoteric has concentrated its amplifier design technology and wisdom to achieve the highest peak. The circuit design is a fully balanced dual mono design that follows the linestage preamp design, with a balanced output (4-pin XLR) and an unbalanced outputs (6.3mm). With its fully balanced power output of 600mW (into a 32 load), this superlative headphone amplifier powerfully drives high impedance headphones with plenty of headroom to spare. The amplifier gain can be also adjustable from 0 to +18dB with 3dB increments to match with the connected headphones.

Dual Mono Phonostage Preamp
The F-02 also responds to analog playback with quality, featuring dual mono phonostage preamp (MM/MC) with independent L/R circuits. The left and right power supplies are also independent, ensuring perfect channel separation.

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3-Band Balanced Tone Control (Treble / Middle / Bass)
The tone control is configured with a balanced dual mono circuit, focusing on the quality as a high-end device. Sound quality can be adjusted without worrying about sound degradation. The tone control can be separately preset for each input source. Treble and bass can be finely adjusted without significantly degrading the original sound of the source by shifting the center frequency of variable bandwidths to a higher/lower point (14kHz /63Hz) than usual, assuming a combination with wide-range high-end speakers. Precise control is possible in 0.5dB steps with a maximum range of ±12dB. The middle band (630Hz) can also be utilized as a loudness preset when set to the minus side and used in conjunction with the tone bypass mode.

High-Precision Ball Bearing Control Knobs

The volume and input selector use the same bearing mechanism as the Grandioso preamp. You can enjoy a smooth, analog feel with no core shake. The large volume/selector knob, which symbolizes the powerful drive capability of this integrated amplifier, is machined from solid aluminum, sparing no expense. The fine machined texture, which varies from surface to surface, beautifully accentuates the design and enhances the sense of luxury. The volume and input select knob also function as mute and power switches, respectively, and the number of buttons on the front panel has been kept to a minimum in pursuit of a minimalist aesthetic.

Design Overview
With the birth of the flagship Grandioso M1X and S1X amplifiers, the Esoteric amplifier design platform has been completely renewed.
The M1X monoblock and S1X Class A stereo amplifiers have captivated audiophiles around the world with their transparent, detailed and dynamic sound, and have become the new icons of high-end amplification.
The power amplifier section of the F-02 follows the circuit design concept of the M1X, with a 120 WPC/8 high-power design.
For amplifiers, the size of the power supply circuit is the most important point that directly affects the performance. The F-02 is configured with dual monaural power supplies for all stages of the power rectification and smoothing circuits, and are equipped with a huge 940VA EI core power transformer, comparable to that of separate amplifiers. In addition, the "subtractive aesthetics" of advanced engineering cultivated in the M1X amplifiers is reflected in every detail of the amplifier design, including a simple and straightforward circuit design for rich harmonic (overtone) reproduction and powerful speaker drive capability through reduced internal impedance. The new F Series is designed to be the pinnacle of quality in terms of drive capability and sound quality, as good as separate power amplifiers.

Substantial Power Supply Comparable to a Separate Amplifier
The power supply is the most important component in realizing a rich sound stage for amplifiers that constantly require large amounts of current, and the F-02 boasts extremely dynamic musical expression thanks to a unique power supply design that incorporates a great deal of Esoteric's expertise.

Large Bare-Mount Power Supply Transformer
The F Series uses the largest EI transformer that can be installed. By using a transformer that is much larger than the product originally requires to meet its output power, the F Series is able to follow dynamic changes in the power supply extremely well, resulting in a dynamic and open sound. In addition, suppressing transformer vibration also suppresses current flow. For this reason, the transformer is bare-mounted without a housing.

Power Rectification Circuit in Dual Mono Configuration
Unless the sound source is monaural, the left and right music signals are different. The power rectification circuits are dual mono, independent of the left and right channels, to avoid mutual interference and achieve clear channel separation and resolution.

Multiple Capacitors Connected in Parallel
Special attention is also paid to the power supply rectification system. High quality custom capacitors of Grandioso grade are used. A dual mono and parallel configuration of four 10,000F capacitors per channel is used. The capacitors are operated in parallel by time difference to stabilize the current charging and discharging to the capacitors, thus ensuring the required large current supply at all times.

Less is More
In the F Series, the signal path from the preamp to the power amplifier is as short as possible, and the bipolar transistor 3-parallel push-pull amplifier circuit is remarkably simple.
The phase compensation circuit is a minimal single-pole configuration, and the output stage is a coil-

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less design. By minimizing NFB (negative feedback), the circuit enhances the dynamics of the music. The minimalist circuit philosophy allows the harmonics (overtones), which are the most important but easily lost in the signal chain, to be preserved and the music to be reproduced like a real sound.
Amplifiers generate a lot of heat, and internal temperature stability is extremely important. For this reason, we have optimized the location and circuitry of the temperature compensation circuit to stabilize the temperature of the entire amplifier block. This helps to speed up the stabilization of the idle current after the power is turned on and allows the transistors to operate at their best performance.

Low Impedance
A 105m thick-walled copper conductor is used for the substrate tracks, which are key to internal signal transmission quality. The eight bus bars in the power stage are luxuriously made of 1.0 mm high-purity OFC material. Important wiring from the primary side to the power supply section, drive stage, etc., is connected with ultra-thick cables with screw connections to eliminate connector losses. MOS FET switches without mechanical contacts are used in the speaker output section. Every detail has been carefully designed to reduce internal impedance. As a result, the amplifier is able to handle even large-diameter woofers, and has a driveability (damping factor: 500) that easily reaches the limit of the low-frequency range.

Mechanical Perfection
To achieve the single design goal of "reproducing the master sound," the F-02 chassis optimally controls all vibrations that affect sound quality. The mechanical engineering of the F-02 is like that of a Formula 1 racing car, with the balance between rigidity and flexibility pushed to the limit. The heavy construction with a total mass of 32 kg, which is unprecedented for an integrated amplifier, shows the fullness and completeness of the product. The enclosure, which requires rigidity, makes extensive use of aluminum blocks to ensure non-resonance. On the other hand, the top panel has a semi-floating structure for an open sound. Esoteric's unique patented isolation foot, which integrates a spike and a saucer, also has a special structure to reduce mechanical stress. In addition, the large heat sinks of the amplifier block have a unique wave shape that disperses the peak resonance of the fins.

Flexible System Upgradability
Achieving a level of perfection in the separate amplifier class, the F Series can be used in a variety of system upgrades that go beyond the limits of an integrated amplifier.
By connecting the S-05 class A amplifier to the pre-outputs (XLR/ES-Link Analog), a multi-amplifier system can be built. To improve the quality of the preamp, an external power supply (sold separately) can be connected.
There is also a slot for adding an option board. Two option boards for the previous generation F Series models (DAC board OP-DAC1 and ES-Link Analog input board OP-ESLA1) are compatible with this slot.

Specs

Product Attributes

EAN:	4907034224951
Manufacturer number:	F-02
Product weight:	34.52 kilograms

Dimensions and Weight

Product height:	19.1
Product width:	44.5
Product length:	47.1
Product weight:	32.4

Audio Inputs

Phono (MM/MC):	1

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RCA:	3
XLR:	3
ES-link analog:	3
Amplification	
Rated output (4):	240W + 240W
Rated output (8):	120W + 120W
Speaker impedance:	4-16
Channels:	2
12 volt trigger:	In & Out
Audio Outputs	
6.3mm jack:	1
Power & impedance 6.3mm jack:	300mW + 300mW (into 32), 16 to 600 compatible
XLR (headphones):	1
Power & impedance XLR (headphones):	600mW + 600mW (into 32), 32 to 600 compatible
XLR:	1
Output level & impedance XLR:	100
ES-link analog:	1
Energy Management	
Power consumption:	215-250
Control Methods	
Controls:	On Device Remote Control RS-232

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