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## Bulletin 0808

### Product Overview

# The Spectral DMC-15SS Studio Standard Preamplifier

The new DMC-15SS Studio Standard Preamplifier reflects Spectral's core engineering commitment to design the industry's most sophisticated preamplifiers in the most purposeful, affordable and uncompromising manner possible. With thirty-five years of intensive design evolution, Spectral high-speed reference preamplifiers have achieved an unrivaled record for combining edge-of-the-art musical performance with high value. The recently introduced DMC-30SS Studio Standard preamplifier has raised the bar substantially in a highly competitive market and is widely considered to establish a new sonic benchmark with its superior control and power supply technologies.

Now Spectral engineers have applied the new design refinements developed for the DMC-30SS to the 'straight-line' DMC-15. The resulting DMC-15SS Studio Standard preamplifier redefines the value/performance equation with breakthrough power supply topology and edge-of-the-art signal control. Unpretentious but elegant, the DMC-15SS dares the comparison with the world's most elaborate and expensive high-end preamps at a fraction of the cost. The secret to this ability lies within. Under the top cover, the DMC-15SS reflects its true heritage as the manual twin of the extraordinary DMC-30SS Studio

Standard achieving unmatched signal transparency, control precision and musical realism. Two major technology breakthroughs pioneered in the DMC-30SS make this new performance level possible; the unique 'Floating Power' regulator and the extraordinary Spectral 'Super Fader'.

### The New Floating Power System

Music and theater systems are becoming larger and more complex so that stray interferences from other components and environmental sources must be prevented from entering and contaminating sensitive audio signals. A common path occurs from power cords that transmit noise residue and harmonics from large amplifiers, video equipment and other components. Higher frequency digital noise will propagate through signal cables to add further sonic loss. The floating power or battery-like regulator was developed for the SDR-4000 Pro and the DMC-30SS and it has demonstrated a superior isolation of noises that occur from power line and audio/video sources. Its combination of dense physical size and electrically open circuit character outperforms batteries and other devices to provide very pure floating power. Amplifier circuits within the DMC-15SS now receive highly regulated voltages as if from small batteries. But unlike batteries, the floating shunt regulator isolates both low and high frequency noise contamination so circuits are neither subject to outside noise, nor pass residues from amplification. This environmental isolation improves performance from complex sound systems as well as assuring unhindered performance from the DMC-15SS itself.

The Spectral 'Floating Power' regulator is a superior approach to noise isolation. While some interferences can be blocked by various AC line isolation products, their use is often problematic with unpredictable sonic side effects and additive distortions. Spectral 'Floating

Power' is an integrated system for noise suppression which outperforms external AC line conditioning products which impose their own sonic colorations.

### **The Case for Uncompromising Attenuation**

Certain devices in a high-end preamplifier fundamentally determine the ultimate performance possible in the component. Since a preamplifier basically amounts to an adjustable line amplifier, the role of the volume control or gain attenuator system is especially critical and will have a strong influence over the final sonics of the component. Most of today's high-end preamps incorporate various digital and IC based attenuator systems to control gain, while a minority still use mechanical controls, potentiometers, switches or relay arrays. In our experience all of these approaches have serious compromises which limit signal transparency, dynamic range, step resolution or reliability.

Today, digital based IC attenuators are ubiquitous in modern audio design. But even the most exotic of these digital and solid-state attenuators color the sound in various ways. Spectral engineers have long experience researching digital and DAC attenuators and find that none of these gain controls are really up to the demands of high-end preamp use, let alone for critical recording applications. We find the best relay and switch based resistor attenuators to be much better sonically than any digital control. Unfortunately, they in turn suffer from dynamic range and contact life limitations, more importantly they are not a realistic option when continuous gain adjustment is required.

Since digital attenuators are not sonically transparent and stepped resistor attenuator controls have step size, contact life and dynamic range limitation, the ultimate gain control would have to be a continuously variable potentiometer or fader. Unfortunately, no pot or fader currently available is transparent or linear enough for the most critical gain adjustment applications in audio.

### **Spectral Develops the Super Fader Technology**

To solve the problems of existing gain control systems Spectral engineers have been working with a leading

aerospace contractor. Out of this multi-year effort comes an extraordinary ultra-precision gain control. The Spectral 'Super Fader' combines mechanical precision, advanced materials science and unrestricted use of exotic materials to create a level control that behaves like an infinite number of theoretically ideal resistors. Inside, the critical moving parts are precision machined from solid precious metals. These wipers have many surfaces that are spring pressured as a group to contact micro-polished optically flat resistance elements. Exemplary mechanical design and fabrication alignment is used to prevent localized heating from circulating currents. Ultra-pure contact metal eliminates solid-state or junction distortions which occur from plated parts used in other controls. When such precision and material commitments are combined, noise and error in the presence of test signals is immeasurable and other performances are very near to ideal thermal accuracy limits. With polished custom element and ball-bearing construction, there is every indication that this superior performance will remain intact even after 40 million operations. The 'Super Fader' potentiometer outperforms all existing gain control systems with virtually infinite service life. We hear a new clarity and transparency, as if a wire has been substituted for the control.

### **The Spectral DMC-15SS Studio Standard**

Spectral founders are deeply committed to high-end audio design in a most uncompromising way. In a world of relativism and compromise we believe that highly accurate reproduction most fully honors fine recorded performances as well as being profoundly musical. The DMC-15 Studio Standard Preamplifier is an advanced expression of this ideal. Exhaustive testing under live recording conditions has created a true standard. With virtually no coloration or character of its own the DMC-15SS is an extraordinarily transparent and truthful window on the recording.

The DMC-15SS is for the serious music enthusiast who is a patient and sophisticated listener. We hope you will take an evening to experience the new DMC-15SS. We think you will discover a wealth of new expressiveness and life in all your favorite recordings.