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## Bulletin 0211

### Design Overview

# The DMC-30SS Series 2 Reference Preamp System

When Spectral introduced the DMC-30SS Studio Standard preamplifier in 2007, we knew that the third generation DMC-30 was something very special. The original series DMC-30 had debuted years earlier in the late 1990s as our first full function reference pre-amp with processor control and remote capability. The first generation DMC-30 went on to extraordinary success for Spectral dealers and in our client systems worldwide. Perhaps more importantly to music lovers is how amazingly productive the DMC-30 platform has been in performance terms, with over a decade of constant engineering development and state-of-the-art sonic accomplishment. The DMC-30 has proven the value of developing a robust, over-engineered basic component topology with open, modular architecture capable of easily evolving as leading-edge technology develops. The evergreen DMC-30 has always had the ability to be reinvented and stay in front of an accelerating audio market year after year while resisting obsolescence and redefining preamplifier performance with each new generation. Now Spectral engineers advance the benchmark DMC-30SS even further with

a sweeping new high-level line section topology and improved SHHA high-speed amplifier modules which achieve a new level of sonic sophistication, refinement and realism.

### **The Legacy of the DMC-30SS Studio Standard**

The DMC-30SS Studio Standard preamp is our third generation DMC-30 reference design. In the DMC-30SS Spectral engineers reinvented the preamp with ground-breaking new technology, layouts and componentry. The first step came with a clean-sheet systemboard design with an advanced new signal buss. The second step implemented the new 'floating power system' originally developed for the ultra-quiet power supply regulators of the SDR-4000 Pro. The third step was the addition of the remarkable Spectral 'super fader' ultra-precision studio gain control and arguably the finest potentiometer yet developed for audio applications. In combination, these major advances resulted in our quietest, most resolving and musically life-like preamp ever. Since introduction, the DMC-30SS has been one of our most critically acclaimed and successful component in the last decade and a reference used throughout the high-end industry. What possibilities remain for the over-achieving DMC-30SS?

### **A New 301A Balance High-level Output Section**

Improvements in preamplifier infrastructure introduced in the DMC-30SS provide a very strong foundation for further development advances in the high-level output section. In the DMC-30SS Series 2, a completely new 301A output stage replaces the 301 balanced line output section originally developed for the DMC-30SL.

For our new preamplifier line section we returned to basics with a clean sheet design and purist intentions. The main engineering objective was to realize a wide

gain “sweet spot” for the exotic SHHA amplifier modules with improved linearity and increased speed. With new line section layout and gain structure, these objectives have been successfully met in the 301A balanced output module.

### **Streamlining the 301 Balanced Output Section**

Since the DMC-30 was introduced over a decade ago audio enthusiast needs have evolved. The original DMC-30 required a gain structure accommodating phono front-ends as well as high-level digital sources. With most clients utilizing dedicated phono components today, the DMC-30SS can be optimised more exclusively for digital source components with tighter tuning for improved performance.

The new 301A line section is now optimized for high gain use without switchable gain attenuation for an additional phono section. In the new layout, signal trace lengths can be substantially shorter and tighter. For the first time all four amplifier sections are now fully symmetrical and identical. An ideal layout makes possible the removal of all stabilizing capacitors from the circuit for increased bandwidth. The dense new layout also achieves tight RF suppression, reduces field sensitivity and minimizes energy storage for improved transient settling.

The 301A line section also features newly optimized SHHA amplifier modules. Improvements in line section signal path and symmetry allow SHHA amplifier modules to be operated at significantly higher speed and gain. Revised SHHA modules achieve their full power bandwidth at 1.75 MHz, almost twice the previous range. The 301A line section gain also increases 10dB from the previous model to better compliment digital source components.

Achieving the final performance refinement in the 301A line section required six development generations for the pc board layout accompanied by rigorous test and measurement and exhaustive listening sessions at each stage. For ultimate transparency, the finest existing custom film components have been created for critical gain-setting, feedback and compensation

positions. Little has been left to chance in crafting our most uncompromising line level amplifiers yet.

Spectral preamplifier line sections have been an engineering focus since the company began in the 1970s and have always led the audio industry in propagation speed and signal resolution. Today, no other preamplifiers have the ultra-fast signal response and signal extinction achieved in the DMC-30SS. Now, the DMC-30SS Series 2 increases this advantage with the faster 301A balanced output section with the revised high-gain SHHA amplifier modules.

### **The DMC-30SS Studio Standard Series 2 Reference Preamplifier - At the Leading Edge**

We are pleased to see more and more music enthusiasts are coming to understand that no music system can be any better than the performance of its preamp. There is also growing sophistication in regards to absolute performance and price. At a time when ultra-high priced preamplifiers are routinely introduced at several times the cost of Spectral, the thoughtful music enthusiast is left to wonder exactly what benefit these lofty prices buy? We believe the sophisticated enthusiast will find the answer in the uncompromising DMC-30SS Series 2. Few preamplifiers at any price can boast the designer credentials and unrivaled component quality of the DMC-30SS. Edge-of-the-art component technologies and advanced layout strategy are utilized throughout the DMC-30SS to a degree rarely seen even in stratospheric components. This is because Spectral engineers have identified those key components that most determine instrument stability and sonic transparency and have invested aggressively. When careful investment in superior quality signal-path components becomes the design priority over expensive metalwork sculpture, state-of-the-art signal resolution can be achieved much more affordably.

Compare our new DMC-30SS Series 2 reference preamplifier against the most costly and ambitious high-end preamps in the industry. We are confident you will discover the musical difference superior engineering experience and design innovation make.