



Ultra Low-Jitter D/A Converter

# DA1N

Supports various digital inputs including USB and CEC's proprietary SUPERLINK.

Fully conveys music information from high quality digital sound sources.



Using high quality BNC cables to ensure minimal signal interference, the DA1N makes it possible to transmit high quality signals from its ideal counterpart - the TL1N belt-drive CD transport - to the DAC, free of distortions and jitter. The DA1N also offers five different digital inputs (including USB for input from a PC), supporting a wide variety of musical needs.



### Evolved SUPERLINK Connection and Multiple Digital Inputs

CEC's proprietary SUPERLINK system minimizes sound deterioration due to signal interference by transmitting four kinds of digital signals separately ; music, master clock, bit clock and L/R clock signals. Accounting for the possibility of potential deterioration caused by the cables themselves, the DA1N offers a new connection using four separate high quality 75Ω BNC cables in addition to conventional 9-Pin D-sub connection. Especially when coupled with CEC's "TL1N" CD transport, the DA1N accurately conveys the genuine atmosphere of the original music source.

Five digital inputs are supported ; SUPERLINK, AES/EBU, COAXIAL, TOSLINK, and USB, the latter enabling input from personal computers.

### Thorough Elimination of Jitter

The quality of the input music signals is a major factor in digital music reproduction. As the signals transmitted through the SUPERLINK system are synchronized with the servomechanism-synchronizing clock, which is generated from the DA1N's master clock, they are unaffected by jitter - digital noises caused by time lags in the signals, which tend to affect sound dynamics and listener immersion. Packet signals from a PC that enter through the USB input are also synchronized with the DA1N's master clock during USB/I2S conversion, and are thus unaffected by jitter.

When it comes to SPDIF inputs such as AES/EBU, COAXIAL, TOSLINK, however, measures to reduce jitter are necessary since these signals often include jitter. The DA1N offers effective jitter elimination with the jitter-resistant high-precision PLL circuit featured in its SPDIF receiver, and by placing a sample rate converter (SRC) just before the signal reaches the DAC circuit. The input signals are resampled to 96kHz by the SRC, which operates synchronously with the DA1N's master clock. The signals are thus completely isolated from the jitters included in the initial

clock signal. Furthermore, for high-quality low-jitter SPDIF music signals the DA1N offers the option of bypassing the SRC circuit.

### Three Different Oversampling Frequencies

The DA1N features two independent DACs (Burr Brown PCM1792A x2) for right and left in a dual-mono configuration, and a choice of three oversampling frequency settings; 128fs for the strongest, 64fs for intermediate, and 32fs for the softest filtering effect and impact on sound quality. The DA1N uses the Delta-Sigma method, which offers a strong quantizing noise filtering effect, for post-oversampling demodulation.

### Two Types of Digital Filter

The DA1N offers two different digital filters; "FLAT", a standard filter with super linear frequency response to 20kHz, and "PULSE", a ringing-free pulse-optimized filter with a softer roll-off below 20kHz.

### Feedback-free and Fully Balanced Analog Circuitry

The DA1N's analog section features a newest-version Current Injection (CI) circuit, which omits the feedback loop and its potential drawbacks on sound quality, as well as fully balanced circuitry, which results in a truly balanced XLR output in addition to an unbalanced RCA output. The RCA terminals feature high-quality custom-made parts.

### Miscellaneous Features

- The DA1N features a high-grade switching power supply with an active AC power -cleaning circuit, as well as three separate transformers that independently supply power to the digital audio section, analogue section and control section.
- The power supply is protected by an internal shield housing to eliminate electronic interferences to the audio section.
- A large VFD monitor indicates the input status, the input sampling rate and the oversampling rate.

Specifications	
Digital Inputs	SUPERLINK x2(BNCx4/D-Sub 9Px1) USB(1.1)x1 AES/EBU(Pin2=Hot)x1 COAXIALx1 TOSx1
Input Sampling	SUPERLINK : 44.1kHz USB : 32-48kHz
Frequency	AES/EUB : 32-192kHz COAXIAL:32-192kHz TOS:32-96kHz
DAC	PCM1792Ax2
Digital Filter	FLAT/PULSE
ΔΣ Oversampling	32fs/64fs/128fs( 32fs only above 88.1kHz)
Sample Rate Converter	96kHz ON/OFF(SUPERLINK/USB bypasses the SRC)
Frequency Response	20Hz-20kHz,-0.2dB(measured with "FLAT" digital filter)
Analog Outputs	Balanced XLR(Pin2=Hot)x1 Unbalanced RCA x1

Power Supply	AC100V~240V, 50/60Hz
Power Consumption	20W
Dimensions	435(W)x350(D)x126(H)mm (incl. legs, buttons and terminals)
Weight	Approx.14.5kg
Accessories	AC power cord, BNC cable set(4 cables), remote control unit, 2 AA batteries, owner's manual
Color	Silver

\*Specifications and design are subject to change without notice.

<b>Safety Precaution</b>	Be sure to operate this product properly once you have thoroughly read the owner's manual.
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