



LINK DAC III

Digital to Analog Converter

24 BIT / 192 KHZ



- ◆ ULTRA-HIGH PERFORMANCE
- ◆ HIGH SLEW RATE BIPOLAR OUTPUT STAGE
- ◆ AUTOMATIC SWITCHING AND ANALOG PASSTHROUGH
- ◆ UPSAMPLING AND 192K INPUT OPTION
- ◆ OPTICAL, COAXIAL AND BALANCED DIGITAL INPUTS



THE LINK DAC III

MSB Technology proudly presents the critically acclaimed Link DAC. The award-winning MSB design team has produced high end D-to-A converters for over ten years. This 24 bit/96kHz (upgradable to 192 kHz) Digital-to-Analog converter offers professional studio performance. Using the Link DAC instead of the inferior DACs in your components will immediately refine and enhance the sound you hear. The Link DAC has the 96kHz sampling rate performance used by studio professionals, and is now upgradable to 192 kHz. The Link DAC will improve the sound purity of any DVD, CD, LD, and DSS with a digital output. It operates flawlessly at 32, 44.1, 48, and 88.2 kHz as well.



MSB's Link DAC switches between the optical and coaxial inputs *automatically*. Most other DACs require the user to manually switch inputs.

The Link's analog input pass-through feature creates an extra analog input and allows a variety of configuration options for your system. When no digital signal is present the analog inputs are passed straight through to the outputs.

The greater sound detail is the result of very low jitter clock recovery provided by the phase lock loop. Direct coupled outputs provide incredible bass enhancement. There are no capacitors anywhere in the signal path, resulting in a linear response all the way down to DC (0 Hz!). An actively maintained low output offset is achieved through a DC Servo Loop. The DC component of the output signal is continuously corrected to maintain zero volts DC without the use of high loss and sound blocking capacitors. Motorola bipolar output buffers provide the listener with rarely achieved accuracy in sound reproduction. Four separate voltage regulators provide ultra clean power. Heavy duty outboard DC power supply keeps noisy AC out of the unit. The LINK has won an Innovations 1999 award and has been rated a Class B Stereophile Recommended Component (reviews and specifications on overleaf).

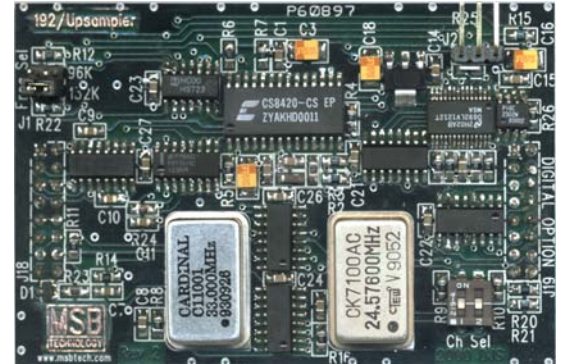
THE LINK III WITH UPSAMPLING

LINK III + UPSAMPLING

MSB has created a way to upsample from *ANY* lower audio standard to 24 bit / 96 kHz. A precise quartz crystal oscillator re-clocks the signal with virtually no jitter. This benefit is heard when the option is installed whether upsampling is on or off. A toggle switch on the back panel allows the upsampling to be manually turned on and off. The option LED on the front panel indicates the status.

Upsampling allows the DAC to operate at a higher sampling rate, allowing more of the filtering to be done in the digital domain, with a corresponding reduction in analog filtering. This improves phase coherence, imaging, detail and attack.

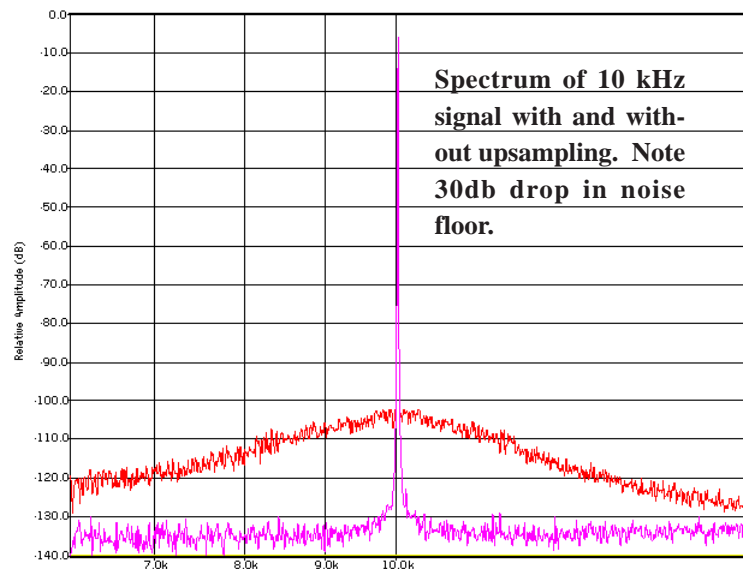
Upsampling is not limited to 96 kHz. An on-board jumper allows the crystal oscillator to be replaced with a higher speed oscillator which upsamples to 132.3 kHz (three times the CD rate)! It is the same concept used to speed up computers. They can actually be overclocked, and the performance is improved. MSB has found that the LINK III performs incredibly at 132 kHz. This unexpected boost comes



20 kHz CD TEST TONE SHOWING UPSAMPLING

free with your upsampling option. Note that the HDCD option does not work at 132 kHz so upsampling should be set for 96K when HDCD is installed.

This upgrade is available from the factory and as a user installable kit for all LINK DAC III's. It is mandatory for 192 kHz operation and is included with the Nelson upgrade. It is compatible with all other upgrades and options. For optimum performance, it is strongly recommended that the Link be powered with the external P1000 Power Base.



THE LINK III WITH MSB NETWORK

LINK III + UPSAMPLING + BALANCED INPUT + 192K

One of the most powerful new features of the LINK DAC Family is compatibility with the new MSB network upgrade. The LINK is equipped with a hole in the back panel to accept the XLR connector used for this upgrade. The XLR provides either a standard AES/EBU balanced digital audio input with automatic switching, or can be configured as a high speed MSB network. This network plugs into the balanced input of the LINK III and is automatically detected and activated. The MSB network does not send audio data in the conventional SP/DIFF format but is much like the older I²S format promoted by Audio Alchemy, except much faster. The master clock, bit clock and word clock are sent separately from the data itself, and each stream is separately recovered. We have both heard and measured a marked improvement in audio quality and signal-to-noise by using the network instead of a standard SP/DIFF connection. The MSB network runs at a minimum speed of 96K but has capability to run much faster as technology progresses.

This network is our answer to 192 kHz audio transmission and multichannel transmission in the same package. We provide network outputs to our new transports and source upgrades as well as to our next generation surround processor so 8 channels of decoded data can be sent through one wire. The twisted pair format is very convenient as it has become the standard for all computer networks. Ethernet networks use CAT5 wire which contains 4 twisted pairs. This one cable could be used to send 32 channels of 34 bit, 192 kHz audio data! On a more practical side, a high-resolution digital video signal can also be sent using the same MSB network on a single twisted pair. Now, with a CAT5 cable, three high-resolution digital video signals and 4 stereo audio channels can be sent in the same cable, with all the control data needed. For multichannel or bidirectional applications, video, 7.1 surround and control data can be sent both ways on the same cable or two separate video, 7.1 surround and control data.

The MSB Network is your gateway to 192K audio source material, and is a much better interface for 96K material than conventional formats. Even a standard CD played in an upgraded DVD player (upsampled to 96K and transmitted via the MSB Network) offers a whole new level of performance and sound quality. We think this option is an absolute requirement for anyone interested in future improvements and expansion.

MSB NETWORK CAPABILITY

TWISTED PAIR WIRING (>100 FT. OF CAT5)
XLR CONNECTORS (AES/EBU COMPATIBLE)

EIGHT 34 BIT 192 KHZ AUDIO CHANNELS
8 CONTROL CHANNELS (3 MBS DATA RATE)

THE HDCD OPTION



The HDCD option makes the Link III HDCD compatible, allowing the user to take full advantage of the benefits of the High Definition Compatible Digital format. HDCD provides heightened dynamic range, a more focused 3-D soundstage, and extremely natural vocal and musical timbre. HDCD discs are automatically detected and decoded. The option LED on the front panel indicates when HDCD is detected.

This option is available from the factory and as a user installable kit for all LINK DAC III's. It is compatible with all other upgrades and options except the Virtual 3D option which cannot be used with HDCD. For optimum performance, it is strongly recommended that the Link be powered with the external P1000 Power Base.



THE P1000 POWER BASE

“As for upgrades, the P1000 is the mandatory next step because it lets the AES/EBU Link really sing. I can't fault the noise performance or the tonal balance with the stock power supply, but the P1000 seemed to extend and reinforce the Link's lower reaches.”

Kalman Rubinson, **Stereophile (The Nelson Link III and P1000)**

“First up, the P-1000 is worlds better than any of the wall plug power supplies provided by MSB in the past. Every aspect of the Gold's performance was improved by using the new supply, and yes, it is worth every penny of the \$299 charged for it.”

Martin G. DeWulf, **Bound for Sound Report (GOLD Review)**

The P1000 Power Base provides a major upgrade to any MSB product. It includes a high performance triple wound toroidal transformer and rectification. It can be configured internally for 120V or 240V and has a detachable cord. A toroidal transformer provides the necessary voltages with a minimum of radiation and loss. Ultra-fast discrete diodes provide efficient low-distortion rectification. Powerful full wave diode bridges provide clean, ripple-free DC power. Massive capacitors filter and further smooth the output. The P1000 has been shown to improve the performance of MSB products, especially in situations where line power is noisy or voltages are variable. **A tighter, deeper bass, better attack, transient response and lower noise floor are some of the benefits you can expect from an upgraded power supply.** This improvement in accuracy and dynamics is achieved with greater stability in soundstage.



P1000

HIGH PERFORMANCE

POWER BASE



THE REVIEWS SAY IT ALL...

- ◆ “I thought the original MSB Link was an unbeatable value. I was wrong. The Link III is even better, and more exciting. The charms of the original’s transparency and immediacy were retained, joined by a new found smoothness and sense of ease in the upper frequencies. The midrange seemed unchanged, but, allied now with an improved top end, was better appreciated. I recommend that you start with the Full Nelson version if you want to realize the full potential of the Link III. Wow and double-wow! By far, I obtained the most musical and impressive performance from the Link III via AES/EBU. The Power Base is the most cost-effective option, as it elevates the performance of *any* Link DAC.”
- Kalman Rubinson, **Stereophile**
- ◆ “All That Glitters Is the MSB Gold. Never has one been able to get so much for so little in a digital processor. Why should I hide my enthusiasm? - I love this digital to analog maker of music... It’s almost mystical in its presence and realism. And realism is what this unit does best. The Gold excels in the realm of dynamic graduation, energy shadings and minute changes in impact. Add to that the Gold’s ability to separate the music from the digital background, and you have the makings for something special and truly out of the ordinary... We’ve all heard digital and analog fall on their respective faces during high dynamic conditions. Add complexity to the music, and digital falls all the flatter, except for the Gold. It keeps weaving together the various elements of the sound regardless of dynamic slam and complexity. These superfine relations within the texture of the music make the experience all the more real, and in some respects, the Gold from MSB set a record for realism dynamically and texturally. And I’m not the only person to hear the Gold’s superiority in this respect, calls and letters from readers testify to the fact that the Gold is replacing the old guard mega buck units in many super high-end systems. ...every processor I’ve heard so far sounds ever so slightly blurred when compared to the MSB Gold—it is that good... I can’t hide my utter enthusiasm for, and just plain love of the MSB Gold. I love what it does for the music by letting the music through so “untouched.”. At this point in time, I’ve heard no digital processor, at any price, interject less of its own personality on the music than the Gold.”
- Martin G. DeWulf, . **Bound for Sound Report**
- ◆ “Good things can come in inexpensive packages... You can find D/A converters that equal the Link (II) in warmth and other nuances, but you would probably have to spend at least three to four times as much to get anything cleaner or decidedly better.”
- Anthony Cordesman, **Audio Magazine**
- ◆ “As to which one is the best...personally my money and listening time goes to the MSB Link DAC (II).”
- Andrew Harrison, **Hi-Fi News & Record Reviews**
- ◆ “I am of the opinion that the MSB (Link II) is superior to everything used in the past in both formats - everything. And I'm not alone in this assessment... it's units like the MSB that will be defining our audio future.”
- Martin DeWulf, **Bound for Sound**
- ◆ “After receiving your Link DAC II, a group of local audiophiles and myself compared your DAC to the Sonic Frontiers SFDII, which sells for more than 10 times the cost of the Link DAC. We found that the Link DAC to be more resolved in all frequencies including the bass! This could truly become the hi-fi steal of the century! Thank you!”
- Mark O. Mawhinney, Owner- **Northern Audio Exchange**
- ◆ “The MSB Link is a steal!... The Link redefines entry into high-quality digital sound... No home should be without one.”
- Kalman Rubinson, **Stereophile (LINK II Review)**
- ◆ “Thanks for your time and for providing an extremely high quality cutting edge product for a price that the general public can actually afford. Companies like yours are extremely rare in today's high end audio marketplace !”
- Kevin Widomski
- ◆ “I am writing to tell you how wonderful the MSB Link DAC is. Compared to what I should be paying for a Krell, Levinson, Sonic Frontiers, or any other brand in the market, buying the MSB Link DAC is one unbeatable decision for the price/performance ratio. Top to bottom definition is the best I've heard yet from my system ... I put on Greg Brown's CD and the MSB was able to deliver big wacks on the bass drum-what a wonderful presentation. Female vocals are so wonderfully delivered through the MSB. Well guys, the search is over for now... until you develop another product priced at \$350 to perform at \$20,000 caliber.”
- Brian Serrano



The April 2000 Recommended Components Issue of Stereophile ranked the LINK II Class B (“The next best thing to the very best sound reproduction; Class B components generally cost less than those in Class A, but most Class B components are still quite expensive.”) Of the top 11 DACs ranked either A or B, the nearest competitor was FIVE times the price! The groups average price is 27 times the price of the LINK DAC III.

<u>SPECIFICATIONS:</u>	<u>LINK III</u>	<u>NELSON LINK III</u>	<u>POWER DAC</u>
INPUTS:	COAXIAL, TOSLINK	COAXIAL, TOSLINK, BALANCED AES/EBU AND MSB NETWORK (192K)	COAXIAL, TOSLINK BALANCED AES/EBU AND MSB NETWORK (192K)
OUTPUTS:	LINE LEVEL 2 VRMS	LINE LEVEL 2.5 VRMS	RCA AND BALANCED 3.6/7.5
SAMPLING FREQUENCY:	32 TO 96 KHz	32 TO 192 KHz	UP TO 3 MHz
DAC:	BURR BROWN	BURR BROWN	MSB SIGN-MAGNITUDE LADDER
SLEW RATE:	7 V/MICROSECOND	1000 V/MICROSECOND	2500 V/MICROSECOND
SETTLING TIME:	<200 NANOSECONDS	<9 NANOSECONDS	<90 NANOSECONDS
DYNAMIC RANGE:	106 dB	109 dB	136 dB
THD+N:	96 dB	96 dB	.002
SIGNAL TO NOISE RATIO:	106 dB	115 dB	140 dB
CHANNEL SEPARATION:	>95 dB	>95 dB	>130 dB
UPSAMPLING:	OPTIONAL	96 KHz AND 132 KHz	385 KHz
WEIGHT AND DIMENSIONS:	18 LBS, 17”W X 14”D X 1.75”H,	RACK MOUNTABLE WITH EXTERNAL POWER SUPPLY (120V OR 220V)	