

Since 1984

Boulder

2120

Digital-to- Analog Converter



*An introduction to the technology within the
Boulder 2120 Digital-to-Analog Converter.*

Welcome

We are living in a world of continual change. Consumer technology exceeds our expectations transforms them, but there is always something new around the corner. Digital audio is driven by constant improvement, from different methods of content delivery to ever-increasing data speeds and resolutions, to new formats for the media itself. Change is all around us.

The 2120 marks a milestone in Boulder's digital development, opening up new horizons for Boulder and its customers. No other digital product can match its engineering and performance.

Modular Approach

The 2120's complete architecture, from hardware to software, is modular and open to future technology updates. Input connector changes and online software downloads, even changes to the very processor that runs the 2120 itself, everything can be revised in order to meet foreseeable technology needs.

Modular input cards also mean that the 2120 can be tailored to meet the specific requirements of your system. Basic input connections such as USB (both Type A and Type B), dual switched Ethernet jacks, AES3, and Toslink are standard. Even a dual input HDMI module with an HDMI pass-through connection is included as standard, too. Optional digital inputs include S/PDIF, or even additional AES3, Toslink, or HDMI inputs. This means that any connection option from traditional CD transports to online

audio and video streaming can be played through the 2120 with the kind of performance that makes home entertainment something for everyone to look forward to.

Digital Capabilities

Streaming audio files like FLAC, AIFF, MP3, Apple Lossless, WAV, or even DSD can be played back quickly and easily. Everything from portable SSD memory devices or networked music servers, from online subscription services to Blu-ray audio and video is available to you.

The 2120 can also handle just about any resolution you can throw at it. Traditional PCM digital audio from 16- to 32-bits and from 32 kHz to 384 kHz, or MP3 files up to 320 kbps are decoded. It will also handle 1x and 2x DSD for good measure.

Audio, however, is just the beginning. Used in tandem with Internet capable HDMI sources such as Google's ChromeCast, the 2120 can easily become a high definition streaming video source when connected to an HD monitor, television, or projector.

Analog Design

Not all of the benefits in the 2120 D/A Converter are in the digital domain. It takes advantage of something no other audio manufacturer has access to: Boulder's renowned analog design.

Each channel of the 2120 is enclosed in its own casework for optimum channel isolation, just as in all of its





reference level preamplifier predecessors. And like the rest of Boulder's digital products, the 2120 is fully-balanced to reduce noise and distortion so that you can hear more of your favorite music and soundtracks.

The gain stages in the 2120 are Boulder's proprietary 993S, a discrete gain module developed specifically for the 2100 Series components. The 993S is the fourth-generation of the 990 gain stage family, a lineage that includes use in the world's premier recording studio equipment. Each channel of the 2120 uses ten 993S gain stages for unmatched output buffering and ultra-low distortion. When combined with the 2120's DSP-based volume control, they enable it to drive amplifiers without the aid of a preamp.

2101 Power Supply

In order to maintain ideal separation for the standby, left channel analog, right channel analog, and digital power supply sections, four independent power supplies are mounted in a separate chassis called the 2101.

The standby power supply is a small, ultra-efficient supply that keeps the supervisor section of the unit awake when in standby mode in order to meet even the toughest power consumption regulations. The standby power supply is then turned off and completely switched out of the active circuit when the 2120 is powered on. The analog and digital supplies have their own transformers and regulation, each of them larger than some small amplifiers.

Transformer hum is not permitted. To prevent the transformers from humming or emitting mechanical noise due to vibration, each is potted in a proprietary compound and encased in a riveted steel enclosure. A DC blocking circuit is then added to maintain absolutely silent operation.

Mechanical Design

All parts of the 2120's casework are machined from solid plates of aluminum on Boulder's own CNC machining centers. Computer-aided design is performed in-house by Boulder engineers. Boulder remains one of the last high-end electronics companies to keep every aspect of production under our own roof.

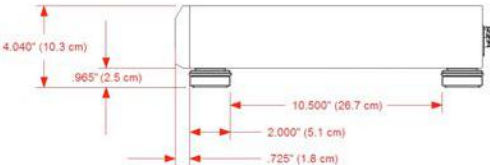
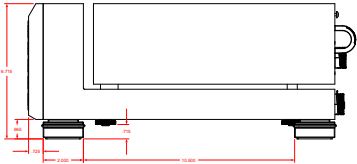
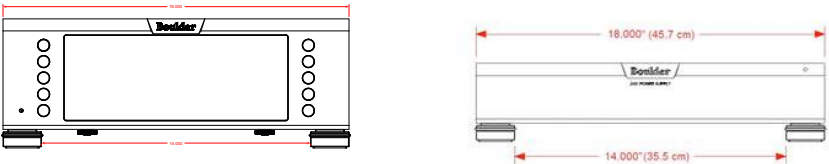
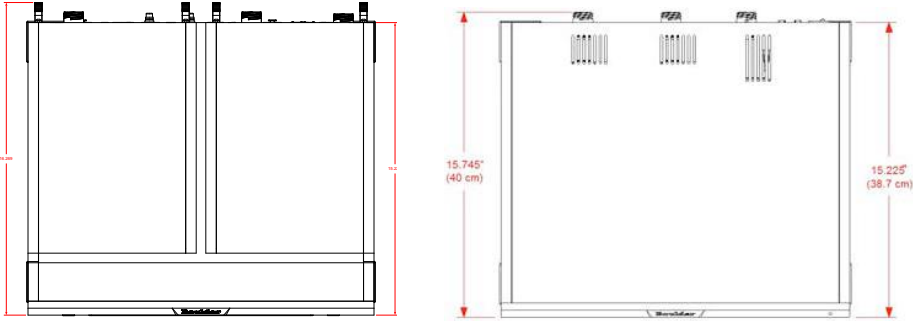
Mechanical resonances are damped via constrained layer methods or by bolting multiple pieces of casework with differing resonances together to raise their combined mechanical resonance outside of the audio band.

Each portion of the 2120 has its own enclosure: the display/processor/clock/DSP section, left channel analog, right channel analog, and the power supply: left, right, digital, and standby.

Because every portion of the 2120 is isolated from the others, nothing interferes with each other or the delicate audio signal of your favorite records, files, or soundtracks.

You hear exactly what the artists, producers, and engineers wanted you to hear.

Dimensions



Specifications

Technical Specifications

Digital Inputs	HDMI, Ethernet (RJ45), USB 2.0 Type A & B, S/PDIF (RCA), AES3 (XLR), Toslink optical (EIAJ)
Audio File Formats Supported	PCM, DSF (DSD 1x/2x), FLAC, xFLAC, WAV, xWAV, AIFF, Ogg Vorbis, MP3, ALAC
PCM Sample Rates Supported (kHz)	32, 44.1, 48, 88.2, 96, 176.4, 192, 352.8, 384
PCM Word Lengths Supported	16-bit to 32-bit
Analog Outputs	2 pairs balanced XLR, adaptable to RCA
Output Impedance	100 ohms (balanced), 50 ohms (unbalanced)
Output Level	4.0V balanced, 2.0V unbalanced @ 0dBFS
Volume Control Range	80 dB in 1.0 dB steps
Display	12.3" (32.25 cm), 1280 x 480 backlit LCD
Ethernet/UPnP/DLNA	2 x RJ45 Ethernet connector
Control Systems	IP, IR, 12V trigger out
Signal-to-Noise Ratio	-115 dB, 22 to 30 kHz, unweighted
THD+N, 0 dBFS	Less than 0.0008% to 20 kHz
Frequency Response	-0.5 dB @20 kHz
DAC Weight	63 lbs., shipping 77 lbs. (28.6 kg, shipping 34.9 kg)
2101 Power Supply Weight	48 lbs., shipping 59 lbs. (21.8 kg, shipping 26.8 kg)
Power Requirements	100/120/200/240 VAC, 50-60Hz

All specifications measured at 120VAC mains power

Boulder Amplifiers

255 S. Taylor Avenue

Louisville, CO 80027

Tel: 303-449-8220

e-mail: sales@boulderamp.com

web: www.boulderamp.com

facebook: www.facebook.com/BoulderAmplifiersInc