

MADRIGAL

N° 36S DIGITAL AUDIO PROCESSOR



For years, Madrigal's Mark Levinson brand has been synonymous with the finest in digital audio. Used by manufacturers, recording professionals, equipment reviewers and music lovers around the world, Mark Levinson components consistently are held up as the standard against which others are measured. The N° 36S builds on this tradition of excellence, introducing a variety of new technologies while sharing the handsome industrial design of the [N° 36](#) and other

Mark Levinson components.

A digital audio processor's role can be likened to that of the conductor of a symphony orchestra. The processor must coordinate the efforts of the many players in the orchestra (the various bits of the digital to analog conversion process) to create music that accurately reflects the instructions contained within the musical "score" (the digital audio signal). Unlike analog sources, the processor must make a musical signal from something which bears no resemblance to the original event; in a sense, it creates music rather than reproducing it. Small wonder, then, that digital processors sound as different as they do.

An ideal digital processor would flawlessly receive the digital information from various digital sources, and convert each of the received numbers into its precise analog equivalent at exactly the right time. It would do so without introducing any extraneous noise or errors that either add to or subtract from the music signal being created. Successfully attaining these goals is expensive and demands careful attention to detail. To make matters worse, incoming digital signals include timing errors that, if uncorrected, severely limit the performance of an otherwise excellent processor. Thus, the ideal processor needs to be able to improve upon the quality of the incoming signal by correcting these timing errors (often referred to as "[jitter](#)").

The N° 36S employs Madrigal's unique Intelligent FIFO™ to minimize jitter and optimize all incoming digital signals. This technology, first developed for the [N° 30.5 Reference Digital Processor](#), is a clear example of how extended research and development projects benefit a variety of Madrigal products. The N° 36S also serves as the "master" of the Madrigal Linking system, which allows components within the system to communicate with each other. Such communication offers benefits in both performance and ease of use. In a Linked system, simply pressing Play on the CD transport will: turn on the digital processor, preamplifier and power amp(s), automatically select the correct inputs on both processor and preamplifier, and begin playing the disc. Thus, even complex systems involving many separate components can offer single-button simplicity of operation.

Technical Highlights

- Intelligent FIFO™ circuitry significantly reduces jitter yielding improved definition, musicality, and soundstaging.
- Six digital inputs encompassing all current digital standards ensure compatibility with any source component.
- 20-bit throughput and dual differential 20-bit conversion provide ample resolution for both existing and possible digital sources of the future.
- HDCD(R) decoding ensures compatibility with the widest range of software.

Intelligent FIFO™

The N° 36S uses a proprietary "first-in, first-out" data buffer that reclocks the digital signal immediately before conversion to analog. Incoming jitter is virtually eliminated by using a custom-made part with better than five part-per-million accuracy as the reference (rather than being dependent on the incoming signal's quality). Unlike simplistic buffering schemes wherein the buffer can either empty or overflow when used with an inaccurate source, the Intelligent FIFO tracks the long-term average data rate of the incoming signal. In this manner, jitter can be rejected without introducing significant delay across an oversized buffer. Laser disc players and other audio/video components can enjoy the benefits of the N° 36S without losing synchronization between sound and pictures.

Input Versatility



The N° 36S provides outstanding isolation between its inputs, realizing the full potential of the digital transports with which it is used. Any selected input effectively has the N° 36S "all to itself." Two electrical inputs are provided via top-quality XLR connectors, implementing the balanced 110 AES/EBU professional digital standard. Two additional electrical inputs provide compatibility with the common 75 S/PDIF digital standard, using a BNC connector and a custom-made Madrigal RCA connector, respectively. Optical inputs are supported in both the ST and EIAJ formats. Thanks in large part to the action of the Intelligent FIFO, the EIAJ-standard optical input (sometimes called "Toslink™") delivers unsurpassed EIAJ performance.

20-Bit Balanced Design

The N° 36S operates in a balanced configuration in both the analog and digital domains. Conversion to analog is also accomplished in two opposing polarity 20-bit converters per channel, each hand-trimmed with precision 0.0006% bulk metal foil resistors. This approach maximizes common mode noise rejection, maintains the integrity of the signal, and reduces the opportunities for music-destroying distortion to enter the signal path.

See also this [technical discussion of the differences](#) between the N° 36S and the N° 36.

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