# Dolby 361 SR/A Noise Reduction Unit



The Dolby Model 361 provides two channels of noise reduction switchable between Dolby SR (Spectral Recording) and Dolby A-type. The economical 1-U high unit is intended for all kinds of audio facilities: music recording, video post production, broadcast, multimedia, and film.

Record/playback changeover of each channel can be controlled individually from the front panel, a tape recorder, or a remote control, allowing a single Model 361 to serve for stereo recording applications. Front-panel toggle switches select Dolby SR, Dolby A-type, or no processing. A set-up button and four-element LED calibration displays allow quick alignment using internally generated Dolby tone for A-type or Dolby noise for SR. As with all other implementations of Dolby SR, the Model 361 features Auto Compare for verifying the performance of the audio system.

The Model 361 is also ideal for applications requiring dedicated encode or decode operation. A pair of 361 units can be used for simultaneous record and playback on two-channel tape recorders, or for transmission systems where the encoder and decoder are physically separated. In single-channel recording applications, a single unit can be used for simultaneous record and playback.

The Model 361 incorporates electronically balanced transformerless input and output circuits. Independent level adjustments for the record and playback signal paths allow accurate matching of existing line levels. A Check Tape switch allows monitoring of either the line-in signal or the encoded tape while recording. Bypass buttons make it possible to remove either or both channels from the entire audio system for studio alignment.

The Model 361 is normally supplied with two Cat. No. 300 modules that contain both Dolby SR and Dolby A-type processing. Dolby SR-only versions using Cat. No. 350 modules or Dolby A-type only versions using Cat. No. 450 modules are also available. Modules may be mixed, or one module may be used. Note: Cat. No. 22 and Cat. No. 280 modules cannot be used in the Model 363.

The Model 361 is normally supplied with two Cat. No. 300 modules that contain both Dolby SR and Dolby A-type processing. Dolby SR-only versions using Cat. No. 350 modules or Dolby A-type only versions using Cat. No. 450 modules are also available. Modules may be mixed, or one module may be used. Note: Cat. No. 22 and Cat. No. 280 modules cannot be used in the Model 361.

For multichannel applications, the Dolby SRP Series is available to provide up to 24 channels of Dolby SR noise reduction.

**Dolby Noise Reduction**

Dolby noise reduction is a family of signal processes that reduce the noise inherent in analog recording media, without affecting the sound being recorded. While they differ in performance and details of operation, all Dolby NR systems are complementary processes that first encode the music when it is recorded, then decode it when it is played back. They also treat soft signals separately from loud ones, and vary the NR action with frequency to avoid the side-effects typical of other systems.

Dolby A-type noise reduction, introduced in 1965, was originally intended for use by professional recording studios to make quieter master tape recordings. In the early 1970s its use was extended to film studios and motion picture release prints in order to make films sound better.

Dolby SR (spectral recording), introduced in 1986, was designed not only to provide more noise reduction than A-type, but also to enable analog master recordings that equal or surpass 16-bit digital recordings with respect to overall dynamic range. Today analog with Dolby SR is still a preferred format for some musicians, producers, and recording and mastering facilities, and is the standard

format for the analog soundtracks of virtually all feature films.

**361 Specifications**

### Frequency Response[1]
20 Hz-20 kHz ± l dB encode/decode, at any level.

### Overall Distortion (THD)[1]
0.2% or less at Dolby level.

### Processor Headroom
+21 dB above Dolby level.

### Overall Dynamic Range[1]
**SR:**
105 dB - clipping level to CCIR/ARM noise level.
105 dB - clipping level to NAB A-weighted noise level.[2] 95 dB - clipping level to unweighted noise level, 20 Hz-20 kHz.[3]
**A-type:**
104 dB - clipping level to CCIR/ARM noise level.
105 dB - clipping level to unweighted noise level, 20 Hz - 20 kHz.

### Typical Obtainable Dynamic Range
38 cm/s (15ips) tape speed
**SR:** 90-95 dB, **A-Type:** 75-80 dB

### Matching Between Units
±l dB at any level and any frequency,
20 Hz-20 kHz.

### Crosstalk
Better than -100 dB, 20 Hz-20 kHz processor off, or encode/decode.

### Signal Delay
6 µs for a single channel, or 12 µs for overall encode/decode system.
Signal Connections (on rear panel) for audio in/out.

### Input Circuit (0 dBr = 0.775 Vrms)
XLR connectors, balanced, 20 k. Common mode rejection:> 55 dB, 50 Hz-10 kHz. Maximum input level: +27 dBr balanced, +21 dBr unbalanced. Input line levels from -10 dBr to +10 dBr can be adjusted to give Dolby level.
Built-in Dolby tone and Dolby noise generators for calibration and channel identification.

### Output Circuit
XLR connectors, balanced, 20 . Output level balance: within 1 dB into symmetrical 600 load. Output float[4] better than -40 dB, 50 Hz-1 kHz. Maximum signal level into 600: +26 dBr balanced, +21 dBr unbalanced. Output line levels in the range -10 dBr to +10 dBr can be adjusted to give Dolby level.

### Remote Control
**9-pin male D connector for:**
Individual-channel record/play changeover for remote control by the tape recorder. Connector may be wired to allow remote-only or combined local and remote operation. Changeover time: 3 ms max.
**15-pin female D connector for:**
Remote control of SR/Off/A in/out and Setup functions. Also provides a remote status indication of

A/SR and Auto Compare function.

## Front-Panel Controls and Indicators

**Individual channel controls:**
A/OFF/SR - Selection of processing type.
NORMAL/CHECK TAPE - Allows checking of the non-decoded signal from tape during recording or playback.
RECORD/PLAY - Control of record/play switching.
BYPASS - Provides relay-controlled "hard" bypass of all circuitry.
LEVEL CONTROLS - Four multi-turn level controls per channel for setting levels to and from the console, and to and from the tape recorder.
SETUP - For use during alignment and calibration.
**Calibration Display:**
Four-LED display per channel for setting Dolby level.

## Power Requirements

**230 Volt version:** 198-264 VAC, 50-60 Hz, 40 W,
uses one 20 mm T250 mA fuse.
**Multi-voltage version:** User selected 85-132 VAC, 50-60 Hz, 40 W, uses one 1.25" 500 mA slow-blow fuse, or 187-264 VAC, 50-60 Hz, 40 W, uses one 20 mm T250 mA fuse.

## Dimensions and Weight

One-rack unit 44 x 483 x 285 mm (1.75" x 19" x 10.2"); a further 65 mm (2.5") required for standard XLR connectors. Net: 6.3 kg (14 lbs) including two Cat. No. 300 modules.

## Operating Conditions

Up to 40° C