

DOLBY DP524 DIGITAL DECODER

DOLBY DP524 TWO-CHANNEL DIGITAL AUDIO DECODER



Designed to provide unmatched flexibility and interconnectivity, the Dolby DP524 is a two-channel digital audio decoder unit supporting Dolby AC-2, Dolby Digital, and MPEG-1 LII algorithms at data rates from 40 to 448 kb/s. With Dolby Digital and MPEG-1 LII, the DP524 supports single-channel, dual-mono (stereo) and joint-stereo formats, at 32, 44.1, or 48 kHz sampling rates.

The DP524 is ideal for decoding and monitoring purposes in broadcast, production, and telecommunications applications. Uses include studio interconnection via ISDN for remote recording and post-production applications (Dolby Fax™), broadcast remotes, and satellite systems.

The DP524 accepts an encoded RS-449 serial datastream with timing information, and automatically selects the appropriate decoding algorithm to recover the original audio and any auxiliary data.

Synchronization is derived from either a user-provided external clock or the unit's own internal clock. Both AES/EBU and S/PDIF digital audio outputs are provided, plus analog outputs with 20-bit D/A converters. The DP524 also features front-panel system status indicators and rear-panel logic-level tallies, as well as an internal test tone generator for system set-up and trouble-shooting.

A complementary encoder unit, the Dolby DP503, is also available, supporting the same algorithms and data rates as the DP524.



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ABOUT DOLBY AC-2 AND DOLBY DIGITAL

Dolby Laboratories' unique knowledge of psychoacoustics combined with advanced digital signal-processing techniques has resulted in two highly-regarded perceptual coding algorithms, Dolby AC-2 and Dolby Digital (AC-3).

With its very high audio transparency and low time delay, Dolby AC-2 is ideally suited for professional, industrial, and broadcast applications. It forms the basis of the Dolby Fax™ system widely used by the film and music industries for remote recording and post-production applications.

Originally conceived as an ultra-efficient multichannel coding system, Dolby Digital was introduced in 1992 to provide digital surround sound in the cinema. Due to its combination of high quality, efficiency, and flexibility, it has since been adopted—in two-channel or multichannel form—for laser disc, DVD, and DVD-ROM, digital television broadcasting, digital cable, and DBS systems.

Dolby AC-2: 48kHz sample rate only

| Total Data Rate (kbps) | Channels† | Aux Data Rate (bps) |
|------------------------|-----------|---------------------|
| 128 [‡] , 192 | 1 | 600 |
| 256, 384 | 2 | 1200 |

Dolby Digital: Selectable 32kHz, 44.1kHz, 48kHz sample rates

| Total Data Rate (kbps) | Channels† | Aux Data Rate (bps) |
|---------------------------------------|-----------|-----------------------|
| 40, 48, 56 | 1 | 0, 1200 |
| 64, 80 | 1 or 2 | 0, 1200, 2400* |
| 96, 112, 128, 160, 192, 224, 256, 320 | 1 or 2 | 0, 1200, 2400*, 9600* |
| 384, 448 | 2 | 0, 1200, 2400, 9600 |

MPEG-1 LII: Selectable 32kHz, 44.1 kHz, 48 kHz sample rates

| Total Data Rate (kbps) | Channels† | Aux Data Rate (bps) |
|------------------------|-----------|---------------------|
| 48, 56 | 1 | 0, 1200, 2400, 9600 |
| 64 | 1 or 2 | 0, 1200, 2400, 9600 |
| 80 | 1 | 0, 1200, 2400, 9600 |
| 96, 112, 128, 160, 192 | 1 or 2 | 0, 1200, 2400, 9600 |
| 224, 256, 320, 384 | 2 | 0, 1200, 2400, 9600 |

*One-channel mode only

†Two-channel designation permits both dual-mono (stereo) or joint-stereo operation

‡Supported only on Dolby DP503, DP523, and DP524 units.

DP524 SPECIFICATIONS

Audio Coding Algorithm

Dolby AC-2, Dolby Digital (AC-3) and MPEG-1 LII.

Audio Sampling Rates

32, 44.1, 48 kHz, selectable.

Dolby AC-2: 48 kHz only.

Frequency Response

Lower limit: 20 Hz.

Upper limit varies with data rate.

Distortion¹

Dolby Digital: Less than 0.01% at 1 kHz; Less than 0.02% 20 Hz to upper response limit.

Dolby AC-2, MPEG-1 LII: Less than 0.1% at 1 kHz;

Less than 0.2% 20 Hz to upper response limit.

Dynamic Range

Greater than 110 dB

Level Stability

Better than 0.2 dB

Dolby Surround Compatibility

Compatible with two-channel Dolby AC-2 and Dolby Digital (AC-3) algorithms.

Time Delay-Encode/Decode

Dolby AC-2 (48 kHz sample rate)

| Data Rate (kb/s) | Delay (ms) |
|------------------|------------|
| 128/256 | 42 |
| 192/384 | 12 |

Dolby Digital (AC-3) (all data rates)

| Sample Rate (kHz) | Delay (ms) |
|-------------------|------------|
| 32 | 210 |
| 44.1 | 152 |
| 48 | 140 |

MPEG-1 LII (all data rates)

| Sample Rate (kHz) | Delay (ms) |
|-------------------|------------|
| 32 | 161 |
| 44.1 | 117 |
| 48 | 107 |

Encoded Data Input and Timing

RS-449 type DT; 37-pin male D connector.

Audio Outputs

AES/EBU: 3-pin male XLR, balanced, 110 Ω \pm 5%; 5 Vpp nominal.

S/PDIF: Female BNC, unbalanced, 75 Ω \pm 5%, 0.5 Vpp nominal per IEC958.

Analogue: 3-pin male XLR, active balanced floating output, 22 Ω , adjustable up to +24 dBu for digital full scale in balanced mode, +18 dB unbalanced (0 dBu = 0.775 Vrms). Test tone reference level is 18 dB below digital full scale.

Auxiliary Data Output

One RS-232, 9-pin male D connector for aux data and remote control/software upload.

Test Tone Generator

Digital equivalent of 1 kHz nominal sinewave at -18 dB referenced to digital full scale.

Status/Control

TTL level outputs/inputs; 25-pin female D connector.

Front-Panel Indicators

LED status indicators for Fault, Mute, Test, Signal Presence, Sample Rate.

Rear-Panel Switches

Select operational modes: Test Tone Generator, Aux Data Rate/Download Data Rate, Algorithm Software Download.

Power Requirements

90–264 VAC, 50–60 Hz, auto sensing, 16 W maximum.

Dimensions and Weight

One rack unit: 44 x 483 x 367 mm (1.75" x 19" x 10.5") Net: 3.9 kg (8.5 lbs)

Environmental Conditions

Operating: 0–50° C, natural convection cooling.

Non-operating: -40–85° C

Regulatory Notices

North America: This unit complies with the limits for a Class A digital device pursuant to Part 15 of the FCC rules. The unit also complies with Industry Canada ICES-003 Class A requirements. The unit is UL Listed for both U.S. and Canada.

Europe: This unit complies with the requirements of Low Voltage Directive 73/23/EEC and EMC Directive 89/336/EEC and carries the CE marking accordingly.

Warranty

One-year limited, parts and labor.

DISCLAIMER OF WARRANTIES:

Equipment manufactured by Dolby Laboratories is warranted against defects in materials and workmanship for a period of one year from the date of purchase. There are no other express or implied warranties and no warranty of merchantability or fitness for a particular purpose.

LIMITATION OF LIABILITY: It is understood and agreed that Dolby Laboratories' liability whether in contract, in tort, under any warranty, in negligence or otherwise shall not exceed the cost of repair or replacement of the defective components and under no circumstances shall Dolby Laboratories be liable for incidental, special, direct, indirect or consequential damages (including but not limited to damage to software or recorded audio or visual material), or loss of use, revenue or profit even if Dolby Laboratories or its agents have been advised, orally or in writing, of the possibility of such damages.

Specifications subject to change without notice.

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