



DP503 Two-Channel Digital Encoder



The Dolby DP503 is a two-channel encoder supporting Dolby AC-2, Dolby Digital, and MPEG-1 Layer II for T1, ISDN, and Dolby Fax applications.

Providing unmatched flexibility and interconnectivity, the Dolby® DP503 is ideal for telecommunications applications requiring high audio quality at efficient data rates. Uses include studio interconnection via T1 and ISDN (for remote recording and postproduction applications for Dolby Fax) and other satellite systems applications.

The DP503 supports Dolby AC-2, Dolby Digital, and MPEG-1 Layer II algorithms at data rates from 40 to 448 kbps. Dolby Fax and ISDN applications require the use of Dolby AC-2 at 256 kbps and a 48 kHz sampling rate. Dolby Digital (AC-3)* supports mono, dual-mono, and stereo formats at 32, 44.1, or 48 kHz sampling rates; MPEG-1 Layer II supports single-channel, dual-mono (stereo), and joint-stereo formats at 32, 44.1, or 48 kHz sampling rates.

Synchronization is derived from either a user-provided external clock or the unit's own internal clock. Input audio, either PCM or analog, is processed by the user-selected algorithm and formatted with timing information into a single serial RS-449 output stream at the chosen data rate.

Front-panel system status indicators and rear-panel logic-level tallies are both provided, as well as an internal test-tone generator for system setup and troubleshooting. For monitoring and other applications, our complementary decoder unit, the Dolby DP524, supports the same algorithms and data rates.

* Not suitable for new broadcast facilities requiring the latest version of the Dolby Digital (AC-3) codec.

Dolby DP503 Two-Channel Digital Encoder

DP503 Front Panel



Display

16-character LCD for status indication

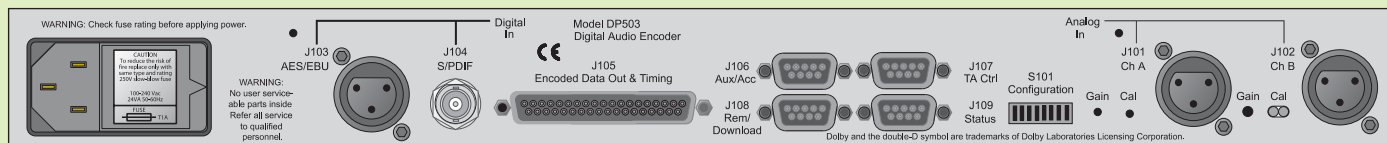
LED Status Indicators

Test, Digital, Remote, ISDN Setup, Loopback, Cal, Overload, Fault, Lock, and Shift

Control Keys

For selecting algorithm, menu navigation, setup, and calibration

DP503 Rear Panel



Digital Audio Inputs

AES/EBU: 3-pin female XLR, $110\Omega \pm 5\%$;
2–7 Vp-p required per ANSI S4.40-1992 S/PDIF;
BNC female connector, unbalanced, $75\Omega \pm 5\%$,
0.2 Vp-p minimum required per IEC60958

Analog Audio Inputs

3-pin female XLR, active balanced input,
selectable $10\text{ k}\Omega$ or 600Ω ; peak level adjustable
from +4 to +24 dBu (0 dBu = $0.775 V_{\text{RMS}}$);
CMRR $>55\text{ dB}$, 50 Hz–10 kHz

Encoded Data Out and Timing

RS-449, 37-pin male D-connector

Status Port

9-pin male D-connector; TTL level outputs

Auxiliary Data Inputs

Three RS-232, 9-pin female D-connectors for
Aux Data, ISDN terminal adapter control, and
remote control/software upgrade

Rear-Panel Switches

Select operational modes: Unit address (0–31),
Normal/Download mode, data rate for
download, and remote control

Audio Coding Algorithm

Dolby AC-2, Dolby Digital (AC-3),
and MPEG-1 Layer II

Audio Sampling Rates

32, 44.1, 48 kHz, selectable (except for Dolby
AC-2, 48 kHz only)

Frequency Response

Lower limit: 20 Hz, $\pm 0.25\text{ dB}$
Upper limit varies with data rate

Distortion†

Dolby Digital: $<0.01\%$ at 1 kHz; $<0.02\%$,
20 Hz to upper response limit
Dolby AC-2, MPEG-1 Layer II: $<0.1\%$ at 1 kHz;
 $<0.2\%$, 20 Hz to upper limit

Dynamic Range

$>100\text{ dB}$

Level Stability

Better than 0.2 dB

Dolby Surround Compatibility

Compatible with two-channel Dolby AC-2 and
Dolby Digital algorithms; compatible with
MPEG-1 Layer II in stereo mode

Time Delay—Encode/Decode

Dolby AC-2 (48 kHz Sample Rate)

Data Rate (kbps)	Delay (ms)
128/256	42
192/384	12

Dolby Digital (All Data Rates)

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

MPEG-1 Layer II (All Data Rates)

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

Data Clock

Internal: $\pm 25\text{ ppm}$, RS-422 output levels
External: $\pm 100\text{ ppm}$, RS-422 input levels

Test-Tone Generator

Digital equivalent of 1 kHz nominal sine wave
at -18 dB , referenced to digital full-scale

Power Requirements

90–264 VAC, 50–60 Hz, auto-sensing, 20 W;
unit is designed to operate from a centrally
switched power source

Dimensions and Weight

1-U rackmount: $44 \times 483 \times 324\text{ mm}$
($1.75 \times 19 \times 12.75\text{ inches}$)
Net: 4.8 kg (10.5 lb)

Environmental Requirements

Operating: 0° to 50°C (32° to 122°F), natural
convection cooling
Nonoperating (storage): -40° to $+70^\circ\text{C}$
(-40° to 158°F)

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, and is UL Listed for both US
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; see disclaimer.
Specifications subject to change without notice.

†Measured using an Audio Precision System One

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, or of
noninfringement of third-party rights (including, but not limited to,
copyright and patent rights).

Limitation of Liability

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in contract, in tort, under any warranty, in negligence, or otherwise
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components or accused infringing devices, 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), cost of defense, or loss of
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