DP563 Dolby® Pro Logic® II and Surround Encoder Quick Start Guide

Calibration

It is necessary to calibrate the DP563 to your local reference level. Simply introduce a 1 kHz signal into the left input channel of the DP563 at reference level using the “Auto Calibrate” function. Alternatively, the DP563 can be calibrated manually by using the up/down cursor keys to adjust the internal level until the LCD displays the desired level. While in manual calibration mode, the level can be reset to the default value of –20 dBFS by pressing the up and down cursor keys simultaneously.

Dolby® Pro Logic® II Basics

Unlike the Dolby Pro Logic system, which offered four channels of audio (L, C, R, and S), including a band limited (100 Hz–7 kHz) surround channel, the Dolby Pro Logic II system features five-channel encoding and full bandwidth audio in all five main speaker channels. Pro Logic II provides improved matrix steering that results in greater channel separation and an exceptionally stable soundfield. Both Dolby Surround and Pro Logic II are stereo and mono compatible, and Pro Logic II is compatible with existing Pro Logic decoding systems. The DP563 Pro Logic II Encoder features user-adjustable premix settings, providing a simple method to create an Lt/Rt mix from an original discrete 5.1 program.

Front-Panel Features

Reset

The DP563 can be reset to factory defaults, erasing all saved presets and configurations. Hold down the Enter button during a power cycle and follow the prompts on the display to re-initialize the unit to the factory settings.

Firmware Upgrade

Updates to the operating system software are periodically available for download at *www.dolbysupport.com*. Software upgrades are possible through the front-panel remote connector (RS232) or the rear remote connection (RS485). Hold down the Setup button during a power cycle and follow the prompts on the display.

Output and LFE Limiters

LFE Limiter

During Pro Logic II or Dolby Surround encoding with an LFE signal present at the input, a soft limiter (attack time 5 ms, release time 1 s) can be applied to the LFE signal prior to being combined with the Left and Right channels. This limiter helps to prevent high-level LFE signals from overloading the output signal.

Output Limiter

Since both Dolby Surround and Pro Logic II encoding are additive processes, there is a possibility that high-level input signals can create an overload condition when matrix encoded. An output limiter (attack time 0.5 ms, release time 100 ms) is provided to protect against this condition. When the output limiter is disabled, a hard clipper is used to prevent overload.

Metadata Control

When audio metadata is present at the rear-panel connection, the DP563, under metadata control, responds to the following metadata parameters:

Metadata Source: Selects whether external metadata is used to configure the unit.

- **Disabled:** Metadata is not used.
- **Program Number:** Use the corresponding program in the external metadata signal.

Dialogue Normalization (Dialnorm): The encoded output level is adjusted to match a dialnorm value of –31. For example, when receiving a dialnorm value of –25, the DP563 adjusts its output level –6 dB to normalize the audio level to –31 dB, relative to digital full-scale. Note: The actual digital full-scale output level is affected by the output level trims.

LFE Channel: When the LFE channel is enabled, a trim is applied based on the value selected in the Metadata Override/LFE Channel parameter. When audio metadata indicates presence of an LFE channel, and the DP563 is encoding in Pro Logic II mode, LFE processing is automatically enabled.

Channel Mode: The Channel mode parameter within the incoming metadata stream tells the DP563 how many channels to use when creating its output signal. The DP563 processes the surround channels slightly differently between Dolby Surround or Pro Logic II encoding, per the incoming metadata stream. When receiving programs with a single Surround channel, Dolby Surround encoding passes the single Surround channel to both Left and Right Surround processors. When receiving programs with stereo Surround channels, Dolby Surround encoding combines the stereo Surround signals prior to mono surround encoding. Stereo (2/0) programs are adjusted according to the dialnorm parameter and sent to the output, while mono (1/0) programs are attenuated 3 dB, sent to the Left and Right channels, adjusted for dialnorm, and passed to the output.

Downmix Parameters: The DP563 adjusts the appropriate input channel according to the downmix parameters within the incoming metadata stream. If extended bitstream metadata is present, the DP563 uses these parameters, including the “Preferred Downmix” parameter, which can indicate either Lt/Rt or Lo/Ro. If Lo/Ro is indicated, the DP563 does not matrix encode the input channels using either Dolby Surround or Pro Logic II technology, but rather uses the downmix parameters to create an Lo/Ro mix that is not intended for Dolby Surround or Pro Logic II decoding.

Surround 3 dB Attenuation: The DP563 inserts a 3 dB attenuation on the Surround channels when instructed by external audio metadata.

Metadata Control–*continued*

Reversion Mode: When under metadata control, the DP563 uses one of three modes to determine the behavior of the unit when the external metadata source is interrupted or corrupted:

- **Last Used:** Uses the last valid metadata parameters received until new valid metadata parameters are received.
- **Internal Params:** Uses internal settings until valid metadata parameters are received.
- **Mute Outputs:** Mutes DP563 outputs until valid metadata reappears.

Override Parameters: The DP563 can override certain metadata parameters while still looking at the external metadata source for others.

Selectable parameters for override:

- **Dialogue Level:** The Dialnorm parameter is used to produce a normalized loudness level equivalent to –31 dBFS LeqA . For more information on program loudness, see the *LM100 User's Manual* available at *www.dolbysupport.com*. *Note: The actual output level will also be affected by the output trims.*
- **LFE Channel:** The DP563 ignores the LFE Channel parameter within the incoming metadata stream, allowing the LFE channel to be hard-enabled or hard-disabled in the encoded Lt/Rt output. The default is disabled.
- **Preferred Downmix:** This parameter is present only when extended bitstream metadata is used. This override allows the user to ignore this parameter and enable or disable Dolby Surround or Pro Logic II encoding at all times.
- **Surround 3 dB Attenuation:** The DP563 can ignore this parameter and either enable or disable surround channel attenuation when under external metadata control.

Lt/Rt Output Levels

When running test signals on individual input channels through the unit, use the following matrix to confirm the appropriate output level corresponding to the input channel. Note that any channel level trims and the Surround 3 dB metadata value (when under external metadata control) will affect the expected output level offset.

	Pro Logic II Encoding		Dolby Surround Encoding	
Input Channel	Lt Output Level Expected Offset	Rt Output Level Expected Offset	Lt Output Level Expected Offset	Rt Output Level Expected Offset
Left	0 dB	<–60 dB	0 dB	<–60 dB
Right	<–60 dB	0 dB	<–60 dB	0 dB
Center	–3 dB	–3 dB	–3 dB	–3 dB
Ls*	–1.2 dB	–6.2 dB	–3 dB***	–3 dB***
Rs*	–6.2 dB	–1.2 dB	–3 dB***	–3 dB***
LFE**	0 dB	0 dB	0 dB	0 dB

* Note that when sending a test signal to either the Ls or Rs input, the Lt/Rt output will be out of phase.

** Note that the ***LFE Source*** menu selection will determine whether the LFE input is active.

*** Note that the ***Surround Source*** menu selection will determine the active input channels.

I/O Control

Enter through the Setup/I/O menu.

Input Channels

Maps digital inputs to audio channels. The six predefined channel mappings are:

Mode	Channel Config
1	L/R Ls/Rs C/LFE
2	L/C R/Ls Rs/LFE
3	L/Ls C/Rs R/LFE
4	L/R C/LFE Ls/Rs
5	L/R C/Ls Rs/LFE
6	C/L R/Ls Rs/LFE

Clock Source

The DP563 requires a valid AES sample clock reference to operate. The unit can be locked to Digital Input 1/2 or to the external reference input. When using the Ref In, sample rate converters (SRC) can be selected, which will convert the input signals to the external reference if desired. This is useful when it is necessary to avoid sample clock differences resulting from multiple input signals being switched into the DP563.

- **Digital In:** Digital Input 1/2 is used as the clock source.
- **Ref In:** An audio sample clock signal presented at the Ref In connector can be used as the system clock reference with sample rate conversion enabled or disabled.

Output Word Length

The DP563 operates with 24-bit precision. When used with equipment that does not support 24-bit resolution, the output word length can be dithered to a shorter length. The default setting is 20-bit.

Coding Delay

The minimum coding delay through the DP563 is less than 2 ms. This delay can be incremented in PAL or NTSC video frames, fields, or in milliseconds. The maximum delay setting is two video frames or 100 ms. When in bypass mode, the DP563 delay is less than 2 ms.

Bypass Mode

When in Bypass mode, the DP563 routes the L/R inputs to the Lt/Rt outputs without any premixing, encoding, word length reduction, or limiting. The system delay in Bypass Mode is less than 2 ms, and is not affected by the Coding Delay setting.

DP563 Main Setup Menu

- **Operating Mode**
  - Coding Mode
    - Dolby Pro Logic II
    - Dolby Surround
  - Auto Calibrate — ENTER=Yes ESC=No
  - Manual Calibrate — –26dB - –8dB
- **Metadata Control**
  - Metadata Source
    - Disabled
    - Program 1-8
  - Reversion Mode
    - Last Used
    - Internal Params
    - Mute Output
  - Override Params
    - Dialogue Level
      - Ext Metadata
      - –31dB - –1dB
    - LFE Channel
      - Disabled
      - Enabled –20dB - +10dB
    - Pref Downmix
      - Ext Metadata
      - Lt/Rt
      - Lo/Ro
    - Srnd 3dB Attn
      - Ext Metadata
      - Disabled
      - Enabled
- **Internal Params**
  - Center Trim — –3dB - +3dB
  - Surround Trim — –6dB - 0dB
  - LFE Trim — –20dB + 10dB
  - Surround Source
    - Ls=Ls Rs=Rs — Pro Logic II Encoding
    - OR
    - Ls — Dolby Surround Encoding
    - Ls + Rs
    - Ls – Rs
    - Rs
  - LFE Source
    - Disabled
    - Enabled
  - LFE Filter
    - Disabled
    - Enabled
  - LFE Limiter
    - Disabled
    - Enabled
- **Postprocessing**
  - Output Limiter
    - Enabled
    - Disabled
  - Output Trim — –10dB - +4dB
- **User Presets**
  - Recall Preset
  - Save Preset
- **I/O Control**
  - Input Channels
    - L/R C/LFE Ls/Rs (Mode 4)
    - L/R C/Ls Rs/LFE (Mode 5)
    - C/L R/Ls Rs/LFE (Mode 6)
    - L/R Ls/Rs C/LFE (Mode 1)
    - L/C R/Ls Rs/LFE (Mode 2)
    - L/Ls C/Rs R/LFE (Mode 3)
  - Clock Source
    - Digital Input
    - Ref In SRC On
    - Ref In SRC Off
  - Output Word Len — 16-24bits
  - Coding Delay
    - Minimum
    - 2-100 msec
    - 1-4 NTSC Fields
    - 1-2 NTSC Frames
    - 1-4 PAL Fields
    - 1-2 PAL Frames
  - Bypass Mode
    - Disabled
    - Enabled
- **System Settings**
  - Remote Baud Rate
    - 38400 bps
    - 19200 bps
    - 9600 bps
  - Unit Address — 8280-FFFE
  - Unit Name
  - Test Tone
    - Disabled
    - Left
    - Center
    - Right
    - Left Surround — When encoding Dolby Pro Logic II
    - Right Surround — When encoding Dolby Pro Logic II
    - Surround — When encoding Dolby Surround
  - Firmware Upgrade — ENTER=Yes ESC=No

DIGITAL INPUT METER LED & CHANNEL ACTIVITY METER LEDS

Color	Indication
Off	Channel is disabled
Yellow	Channel is enabled; level <–60 dBFS
Green	Signal present above –60 dBFS
Red	Signal above –0.1 dBFS (clipping)

FUNCTION LEDs

Function	Color	Indication
Limiter	Off	Both output and LFE limiters are disabled
	Green	Either or both limiters are enabled, and not currently limiting
	Red	Either limiter is enabled and is engaged
Fault & Error	Off	Normal operation
	Red	Fault
Remote	Off	Remote Mode disabled
	Green	Remote enabled, no communication error
	Red	Remote enabled, communication error
Ref In	Off	The Ref Input is not selected as the clock source
	Green	The Ref Input is selected and locked to an AES reference without errors
	Red	The Ref Input is selected but invalid
Test	Off	Normal operation
	Red	Test tone output is enabled and audio inputs are ignored

PRESETS

Preset Name	PRO LOGIC II	PLII EXT MD	DS 4-CHANNEL	DS WITH PREMIX
Coding Mode	Dolby Pro LogicII	Dolby Pro Logic II	Dolby Surround	Dolby Surround
Calibration Level	–20 dB	–20 dB	–20 dB	–20 dB
Metadata Source	Disabled	Program 1	Disabled	Disabled
Reversion Mode	Last Used	Last Used	Last Used	Last Used
Override/Dialogue Level	Ext Metadata	Ext Metadata	Ext Metadata	Ext Metadata
Override/LFE Channel	Disabled	Disabled	Disabled	Disabled
Override/Pref Dwnmix	Ext Metadata	Ext Metadata	Ext Metadata	Ext Metadata
Override/Srnd 3dB Attn	Ext Metadata	Ext Metadata	Ext Metadata	Ext Metadata
Center Trim	0 dB	0 dB	0 dB	0 dB
Surround Trim	0 dB	0 dB	0 dB	0 dB
LFE Trim	+7 dB	+7 dB	+7 dB	+7 dB
Surround Source	Ls=Ls Rs=Rs	Ls=Ls Rs=Rs	Ls	Ls+Rs
LFE Source	Disabled	Disabled	Disabled	Enabled
LFE Filter	Enabled	Enabled	Enabled	Enabled
LFE Limiter	Enabled	Enabled	Enabled	Enabled
Output Limiter	Enabled	Enabled	Enabled	Enabled
Output Trim	0 dB	0 dB	0 dB	0 dB
Input Channels	L/R C/LFE Ls/Rs	L/R C/LFE Ls/Rs	L/C R/Ls Rs/LFE	L/R C/LFE Ls/Rs
Clock Source	Digital Input	Digital Input	Digital Input	Digital Input
Output Word Len	20 bits	20 bits	20 bits	20 bits
Coding Delay	Minimum	Minimum	Minimum	Minimum
Bypass Mode	Disabled	Disabled	Disabled	Disabled
Remote Baud Rate	38400 bps	38400 bps	38400 bps	38400 bps
Unit Address	8280	8280	8280	8280

LCD Contrast Adjust

Press and release — SHIFT

Press and release — ↓

Adjust contrast using — ↑ ↓

Software v2.0.6.0