DP564 Reference Decoder Quick Start Guide

Downmix Modes

- **Stereo (Lo/Ro):** A two-channel downmix designed for stereo listening. The Left and Right channels are sent to the Left and Right outputs respectively; the Center channel is added equally to the Left and Right outputs; the Left Surround is added to the Left output; and the Right Surround to the Right output*. The levels at which these signals are combined is controlled by downmix level metadata generated in the Dolby® Digital encoder.
- **Lt/Rt:** A two-channel downmix (Lt, Rt) that is compatible with Pro Logic and Pro Logic II decoding. The Center channel is added equally to the Lt and Rt outputs* and the Left and Right surround channels are summed to make a mono surround which is then added, with a phase difference, to the Lt and Rt outputs. The level at which these signals are combined can be controlled by metadata generated in the Dolby Digital encoder.
- **Mono:** All channels' signals are sent to the Center speaker*. On Dolby Digital bitstreams containing more than two channels, the Mono downmix is created by combining the outputs from the selected Stereo downmix mode.

  ** Note: When decoding 5.1 Dolby Digital bitstreams, the Low-Frequency Effects (LFE) channel is muted in Stereo, Lt/Rt, or Mono downmix modes.*

Decoding Modes

- **Pro Logic® II:** Pro Logic II (five-channel) matrix decoding of either a 2/0 Dolby Digital bitstream or stereo PCM.
- **Pro Logic:** Pro Logic (four-channel) matrix decoding of either a 2/0 Dolby Digital bitstream or stereo PCM.

  Note: Manual selection of Pro Logic or Pro Logic II decoding on 2/0 Dolby Digital data streams is only possible when the Pro Logic Monitor Control is set to "Manual".

  Note: Dolby Digital bitstreams containing more than two channels can be downmixed to Pro Logic or Pro Logic II by first engaging either the Stereo or Lt/Rt downmix button.
- **EX:** Surround EX™ decoding of a Dolby Digital bitstream creating a Center Rear or Back Surround channel. EX decoding is valid only on Dolby Digital bitstreams with stereo surround channels.
- If all decoding mode buttons are dark, no decoding modes are active, and the DP564 will pass through a PCM signal or Dolby Digital bitstream.

Listening Modes

There are three listening modes: Full, 3 Stereo, and Phantom. These provide a method to preview the consumer's listening experience by providing a variety of different home theater speaker setups.

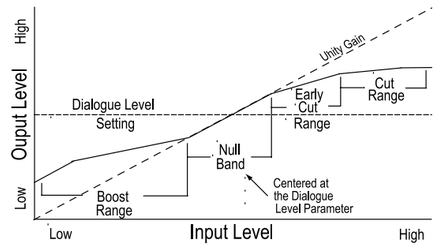
- **Full:** Every channel (depending on the number of input channels and the decoding mode selected) is reproduced in its appropriate location.
- **3 Stereo:** The left and right surround signals are sent to the Left and Right front speakers, respectively.
- **Phantom:** The center channel signal is sent equally to the Left and Right front speakers.

Dolby Headphone Processing

Dolby Headphone processing offers listeners the effect of a five-channel surround sound system over conventional headphones. There are four modes of processing available: Off (traditional stereo), DH1 (Small Room), DH2 (Medium Room), and DH3 (Large Room).

Compression Modes

Compression Modes allow the user to select how much Dynamic Range Control or compression is applied to a Dolby Digital bitstream during decoding. The DP564 includes four Compression modes selected through a combination of the three front-panel buttons. These compression settings emulate all possible compression choices available on consumer home theater equipment. The diagram below shows how the Compression mode can control the dynamic range of an audio signal.

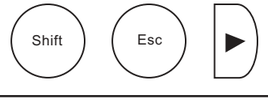


- **Custom**
  A consumer compression mode available on more fully featured consumer decoders: low- and high-level scaling of light (Line mode) dynamic range compression parameters of 0-100% is allowed and dialogue normalization is applied. To activate the scaling parameters, hold down the Custom button for three seconds, until the scaling menu appears. When downmixing to Lo/Ro or Lt/Rt, high-level cut scaling is automatically set to 100%.
- **Line**
  A consumer compression mode found on most DVD players, TV receivers, and as an option (e.g. late-night mode) within most A/V receivers: light (Line mode) dynamic range compression is applied at 100%; dialogue normalization is also applied.
- **RF**
  A consumer emulation mode found on some DVD players (particularly PC-based) and the RF output of set-top boxes: moderate to heavy (RF mode) compression is applied at 100%; dialogue normalization is also applied.

When all three compression mode buttons are dark, the DP564 is in the Custom mode with 0% scaling. This is equivalent to the "full range" mode on a consumer decoder: no compression is applied except during downmixing; dialogue normalization is applied. During downmixing, high-level cut compression is applied at 100%, emulating a consumer product.

Front-Panel Hardware Reset

Press, hold and release these three buttons simultaneously.



Room Calibration

- It is essential that the monitoring environment is correctly calibrated to allow proper evaluation of content quality. The following steps give an outline of the calibration process. For more information see Section 5 of the User's Manual.
- Use the Speaker Config menu to configure the DP564 to match your listening system. Set the number of loudspeakers, their sizes, and the subwoofer crossover frequency. These settings determine how the DP564 distributes low frequencies to your speakers.
- Set the speaker delays by measuring the distance (in feet) from the reference listening position to each speaker. The delay is calculated as follows: C delay = L–C, S delay = C–S, and Bs delay = C–Bs (where delays are set as 1 foot = 1 ms)
- Set the Digital Reference Level to match your studio digital reference level.
- Set the master volume to Ref and enable the internal Test Noise. Adjust the level of each channel using the Master and Channel Trims so that the measured SPL from each of the main speakers, at the reference listening position, is identical. This should be done using an SPL meter set to C weighted, slow.
- The level of the Subwoofer speaker (if present) should be set to provide +10 dB of gain over the center channel in the frequency range between 25Hz and 120Hz. This measurement should be made using an RTA.

Bass Management

Bass management allows bass frequencies within a Dolby Digital signal to be directed to the speakers that are most able to handle them. Within the DP564, it is controlled by appropriate selection of speaker sizes in the Speaker Configuration setup menu.
Choosing a small speaker re-directs low frequencies from the smaller speakers to the subwoofer speaker (if one is present) or to the Left and Right speakers. A channel set to large does not have any redirection.
For example, in the case of a 5.1 system consisting of five small speakers plus a subwoofer, all low frequencies are redirected and low-pass filtered according to the setting of the Subwoofer Crossover parameter, summed with the LFE channel and output to the subwoofer speaker. The current settings can be seen in the Monitor Status menu.

Bypass Mode

When Bypass Mode is active, the DP564 passes through the input signal with minimal processing. A PCM input signal passes straight to the Left and Right outputs. A Dolby Digital bitstream is decoded but no metadata is applied during the decoding process. Downmixing, Decoding, and Listening modes are all bypassed. This mode is intended for testing, station alignment, and troubleshooting. Bypass mode should not be used during mixing or mastering, as it does not represent a valid consumer environment. Pressing the SHIFT and then ESC keys controls the selection of Bypass mode.

Clock Reference

The digital audio outputs of the DP564 can be referenced to the input signal (the default setting) or to an external reference, presented at the Ref In connector. When externally referenced, an optional sample rate converter can be enabled to re-sample the output to match the Reference sample rate.

Network Configuration for Remote Control or Streaming

- Connect the DP564 to your Ethernet switch.
- Configure Network Settings.
  If your network has a DHCP server, set the **IP Config** to **Automatic**. Otherwise, set the **IP Config** to **Manual** and enter **IP** and **Subnet Mask** addresses. Contact your network administrator for these values and the **Route** and **DNS** settings, if necessary.
- Reboot the DP564.
- The System Status menu should now show valid addresses for IP and Mask, and will show Route and/or DNS, if the network supports it.
- Install DolbyRemote 564 and the Streaming Server from the CD-ROM provided.
- Place the DP564 in Remote mode by pressing **Shift** and then **<**.
- Launch DolbyRemote 564 and enter the IP address of your DP564 when prompted.

Using the Timecode Output

When playing a Dolby Digital bitstream that contains time stamps (timecode information), the DP564 generates a Linear Timecode (LTC) output locked to that bitstream. This output can then be used to lock the Dolby Digital audio to other sources, for example a VTR for checking A/V sync. The DP564 must be the master, so it may be necessary to use a synchronizer.

Timecode/TS Delay Word Display

Timecode derived from embedded time stamps or the Time Stamp Delay Word value can be displayed on the main status screen. The Time Stamp Delay Word is a setting within a Dolby Digital encoder that carries delay information to downstream devices, such as broadcast transmission equipment. The delay word is read in milliseconds, where a positive value indicates an advance and a negative value, a delay.

Latency

- The difference in time between the first input sample entering the DP564 and the output of the first PCM sample representing that input is known as Latency.
- The latency for inputs flagged as "consumer" is dependent on the sample and data rates, and conforms to the IEC 61937 specification. When receiving a consumer stream, the DP564's latency matches that of a consumer decoder. Generally, the latency of a Dolby Digital data stream flagged as "consumer" is about 1/3 of that of a stream flagged as "professional".
- Decode latency values for inputs flagged as "professional" are:

Sample	Dolby Digital	PCM	
Rate	Latency	Normal	Silent Switch
48 kHz	32 ms	2.7 ms	34.7 ms
44.1 kHz	34.8 ms	2.9 ms	37.7 ms
32 kHz	48 ms	4 ms	52 ms

- The current **Decode** and additional **Processing** latency through the DP564 can be viewed in the System Status menu.

Silent Switch Mode increases PCM latency by one Dolby Digital data frame period to minimize artifacts when "crash" switching between PCM and Dolby Digital streams.

DP564 Unit Setup Menus

Operating Mode

- Decode Format
  - Auto
  - Dolby Digital
- Detection
  - Normal
  - Silent Switch
- Stream Select
  - 0–7
  - Automatic
- AES3 Ch Sel
  - Automatic
  - Channel 1
  - Channel 2
  - Channel 1+2

Monitor Control

- Pro Logic
  - Manual
  - Automatic
- Surround EX
- Extnd Bitstrm
  - Enabled
  - Disabled
- Dolby H Mode
  - Off
  - DH1 (Small Room)
  - DH2 (Medium Room)
  - DH3 (Large Room)
- Pro Logic II
  - PLII Mode
    - Movie
    - Music
    - Pro Logic
    - Matrix
  - Panorama
    - Enabled
    - Disabled
  - Dimension
    - +3 to –3
  - Center Width
    - L/R, +3 to –3
- Karaoke
  - Mode
    - Unaware
    - Aware
    - Capable
  - Level/Pan
    - Vocal/Music Level
    - Vocal/Music Pan
- Speaker Mutes
  - Left
  - Right
  - Center
  - Subwoofer
  - Ls
  - Rs
  - Bs
  - Active
  - Mute
- LFE Mon Mode
  - Automatic
  - On
  - Off

User Presets

- Recall Preset
  - Preset 1–32
- Save Preset
  - Preset 1–28

I/O Control

- Clock
  - Digital In
  - Ref In-SRC On
  - Ref In-SRC Off
- IFE Mode
  - Enabled
  - Disabled
- Monitor Output
  - Analog
  - Analog & Digital
- Bypass
  - Enabled
  - Disabled
- GPI/O Configuration
  - Cat.No.549 Config
  - GPI/O Pin Config

Cat. No. 549 Config

	Button 1
	Function: AES1 Input
	LED Sense: Normal

GPI/O Pin Config

Pin 3	Function: AES1 Input
In	Polarity: Pos
Out	Trigger: Level

Monitor Configuration

- Speaker Config
  - Left/Right
    - Large/Small
  - Center
    - Yes/No
  - Ls/Rs/Bsl/Bsr
  - Subwoofer
    - 80Hz
    - 100Hz
    - 120Hz
  - SW Xover Freq
  - BS Speakers
    - None
    - One
    - Two
- Speaker Delays
  - Center
    - –3 to +5ms
  - Ls/Rs
    - 0 to +50ms
  - Bsl/Bsr
  - Pro Logic
    - 10 to +100ms
- Channel Trims
  - Test Noise
    - Off
    - Wideband
    - Filtered
  - Master Trim
  - Left
  - Right
  - Center
  - Subwoofer
    - +6 dB to –20 dB
  - Ls
  - Rs
  - Bsl
  - Bsr
- Digital Ref Auto Cal
  - Yes/No
- Digital Ref
  - –26 to –8dB
- Dim Gain
  - Mute, –30 to +6dB

System Settings

- Unit Name
- Unit Address
- Timecode Display
  - Timecode
  - TS Delay Word
  - Disabled
- Screensaver Timeout
  - 10 min
  - 1 hour
  - 4 hours
- Screensaver Design
  - Logo
  - Unit Name
- Network Settings
  - IP Config
    - Auto/Manual
  - Host Name
  - Domain Name
  - IP Address
  - Subnet Mask
  - Default Gateway
  - DNS Server

Status Menus