

Dolby DP591 Audio Encoder

Quick Start Guide

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1 Overview

The DP591 introduces the immersive audio to existing live production creation, contribution, and distribution infrastructures.

The Dolby DP591 delivers live audio that includes Dolby Atmos audio content, and also supports 5.1 and stereo audio formats.

The DP591 enables the audio engineer to:

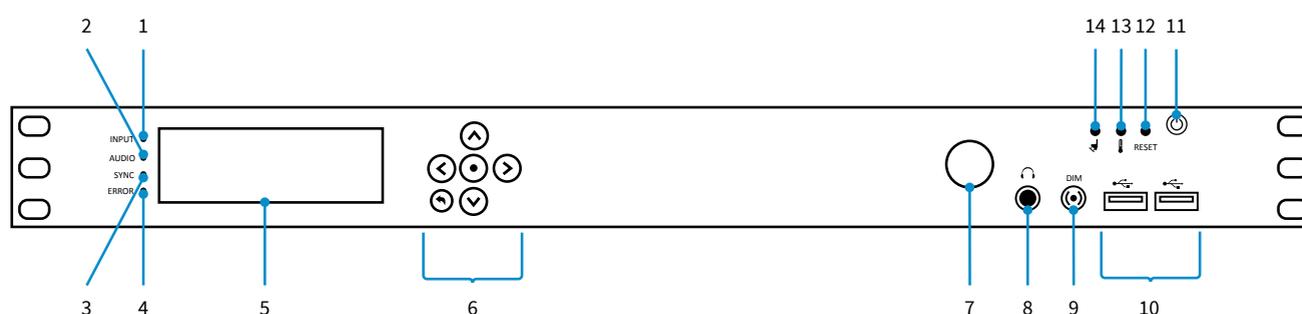
- Encode PCM audio and metadata to the Dolby ED2 contribution format, Dolby Digital Plus, or Dolby Digital Plus with Dolby Atmos content
- Transcode Dolby E to Dolby Digital Plus and Dolby ED2 to Dolby Digital Plus with Dolby Atmos content
- Decode Dolby ED2 content to its original PCM channels

This documentation describes how to prepare the DP591 unit for its first usage.

See *Dolby DP591 Audio Encoder User's Guide* for detailed instructions. The guide is available on the DP591 UI under the **Help > User Manual** section.

2 DP591 front panel

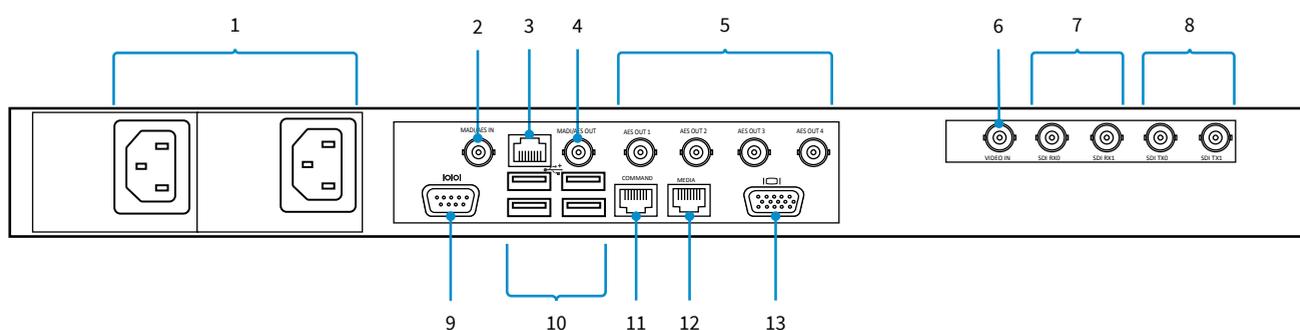
The front panel provides device control and status information.



Item	Interface	Description
1	Input LED	<ul style="list-style-type: none"> Green: Active signal on the selected input. Red: No active input signal. Off: No encoding mode selected.
2	Audio LED	<ul style="list-style-type: none"> Green: Audio data is detected on the input. Red: Whenever a cyclic redundancy check (CRC) error is detected, the LED is on for five seconds. Off: No audio data is detected on the input.
3	Sync LED	<ul style="list-style-type: none"> Green: The device is synchronized to the primary clock source. Yellow: The device is synchronized to a secondary clock source. Off: The device is not synchronized.
4	Error LED	<ul style="list-style-type: none"> Not used.
5	Control screen	<ul style="list-style-type: none"> Displays the input type and the encoding mode. From the menu, you can set/view device IP addresses.
6	Navigation keys	<ul style="list-style-type: none"> Used to navigate through the device menu and to set the device IP addresses.
7	Volume control knob	<ul style="list-style-type: none"> Not used.
8	Headphone jack	<ul style="list-style-type: none"> Not used.
9	Dim button	<ul style="list-style-type: none"> Not used.
10	Two USB 2.0 ports	<ul style="list-style-type: none"> Used to load firmware upgrades.
11	Power button	<ul style="list-style-type: none"> Powers up the unit. Use at the end of the initial installation, and for shutting down or power cycling the device. <ul style="list-style-type: none"> Short press: The OS shuts down correctly, closing processes and saving open files. Long press: Forces power down of the system. Nothing is saved, and data may be lost.
12	Reset button	<ul style="list-style-type: none"> Physical reset of the device. No data is saved.
13	Over-temperature indicator	<ul style="list-style-type: none"> Solid red: Indicates that the unit temperature is higher than the recommended range for safe operation. Ensure that the unit front and rear air vents are not blocked, and that the ambient room temperature meets device environmental specifications. Flashing red: Indicates fan failure.
14	Power supply failure indicator	<ul style="list-style-type: none"> Red: Indicates that one of the power supplies has failed, or is disconnected from the power mains.

3 DP591 rear panel

The DP591 rear panel provides access to the device input and output connections, as well as to the power supply.



Item	Interface	Description
1	AC power supply	Two AC power supplies, 100 and 240 VAC, 50–60 Hz, and 350 W, with temperature controlled fans: <ul style="list-style-type: none"> • Redundant power supplies. When one fails, the unit generates an alarm and switches to the other power supply. • Fans provide front-to-rear air flow. When the temperature exceeds maximum operating temperature, a front-panel indicator lights up.
2	MADI/AES input	This MADI input port receives up to 64 channels of PCM audio from an audio console, for encoding. The MADI input can act as a clock source.
3	Gigabit Ethernet port	This port is not in use.
4	MADI/AES output port	This MADI output port transmits up to 64 channels of decoded PCM audio to a downstream device for reauthoring purposes.
5	AES output port	This port outputs: <ul style="list-style-type: none"> • Encoded Dolby ED2 for contribution services • Encoded Dolby Digital Plus or Dolby Digital Plus with Dolby Atmos content for distribution services • Transcoded Dolby Digital Plus or Dolby Digital Plus with Dolby Atmos content for distribution services • Decoded Dolby ED2 (the first eight channels) to PCM audio for reauthoring purposes
6	Video Input (Vref) port	This port receives a Vref signal to act as a video clock reference.

Item	Interface	Description
7	SDI input port	<p>The SDI0 port receives HD-SDI and 3G-SDI Level A video with up to eight embedded SDI audio pairs, for the following use cases:</p> <ul style="list-style-type: none"> • Encoding PCM audio to Dolby Digital Plus or Dolby Digital Plus with Dolby Atmos content • Encoding PCM audio to Dolby ED2 • Transcoding Dolby ED2 to Dolby Digital Plus with Dolby Atmos content • Transcoding Dolby E to Dolby Digital Plus <p>The SDI0 and SDI1 ports can act as a clock source.</p>
8	SDI output port	<p>The SDI0 port outputs the HD-SDI and 3G-SDI Level A video with up to eight embedded SDI audio pairs of:</p> <ul style="list-style-type: none"> • Encoded Dolby ED2 for contribution services • Transcoded Dolby Digital Plus or Dolby Digital Plus with Dolby Atmos content for distribution services • Decoded PCM audio for reauthoring purposes <p>The SDI1 port duplicates the output from the SDI0 port.</p>
9	Serial port	This port is not in use.
10	USB 2.0 ports	These ports are used for USB firmware upgrades.
11	GbE command port	This port provides access for device control through a web-based user interface (UI). It receives metadata over IP from a Dolby DP590.
12	GbE media port	This port is not in use.
13	VGA video port	This port is not in use.

4 Installing the hardware

Install the DP591 unit using the components included with it and any other equipment you require for your intended use.

Procedure

1. Mount the DP591 unit in a rack that is at least 400 mm (16 in) deep.



Caution: To ensure proper ventilation, do not block the front-panel ventilation area on the top surface at the front of the machine.

2. Connect the provided power cables to the AC connectors.
We recommend connecting both power cables and then connecting each one into an independent power network.
3. Connect your audio and video inputs and outputs.
4. Connect an Ethernet cable from your network to the **Command** port.

5 Starting up the system

Start up the DP591 unit using the power button.

Prerequisites

Make sure that the DP591 hardware is installed.

Procedure

To start up the system, press the power button.

Results

The unit starts up in approximately one minute.

6 Checking the IP address

Use the front-panel navigation buttons to check the IP address of your DP591 unit.

Procedure

1. In the DP591 front panel, press the back button until the user-control screen displays the unit name and encoding parameters.
2. Press the right or left arrow button to navigate to the **CMD Interface** screen.

Results

The user-control screen of your DP591 unit displays this network information:

- **IP:** The IP address of your DP591 unit
- **MSK:** The network mask
- **GWY:** The gateway address

7 Configuring the network with front-panel buttons

Use the front-panel navigation buttons to set either static IP address or use an automatic IP assignment using the Dynamic Host Configuration Protocol (DHCP) server.

About this task

Default factory settings configure the DP591 unit to acquire an IP address via DHCP. Alternatively, you can configure a static IP address.

Procedure

1. In the DP591 front panel, press the back button until the user-control screen displays the **DP591 Settings** menu.
2. Open the **DP591 Settings > System Settings > IP Settings > Command Interface** menu.
3. Configure the IP address of your unit.

Option	Steps
DHCP	<ol style="list-style-type: none"> 1. Open the Network Mode menu. 2. Press enter until the DHCP mode is selected. 3. Choose Apply to confirm the configuration.
Static IP address	<ol style="list-style-type: none"> 1. Open the Static IP Settings menu. 2. Set these network addresses based on your configuration: <ul style="list-style-type: none"> • IP: The IP address of your DP591 unit

Option	Steps
	<ul style="list-style-type: none"> • Netmask: The network mask • Gateway: The gateway address <p>3. Choose Apply to confirm the configuration.</p>

4. Configure the host name of your unit:

- a) In the **DP591 Settings > System Settings > IP Settings > Command Interface** menu, open the **Host Name** menu.
- b) Set the name of your DP591 unit.
- c) Choose **Apply** to confirm the configuration.

8 Accessing the DP591 web UI

Open the DP591 web UI to control the unit functions.

About this task

The DP591 web UI is supported by the following web browsers:

- Google Chrome
- Mozilla Firefox

Procedure

Open a web browser, and type the command port address of your DP591.

Results

The DP591 web UI appears on the screen.

9 Hardware specification

The Dolby DP591 Audio Encoder meets certain hardware specifications and a variety of compliance standards.

- [Physical specifications](#)
- [Environmental specifications](#)
- [Compliance](#)

9.1 Physical specifications

The DP591 occupies one rack unit and is mountable in an EIA-310 standard rack.

Dimensions	1 U rackmount: 44 × 483 × 394 mm (1.75 × 19 × 15.5 inches)
Net weight	6.5 kg (14.5 lb)

9.2 Environmental specifications

The DP591 meets a variety of environmental specifications.

Power

Power supply	Dual, hot-swappable from rear
Input voltage range	100–240 VAC
Input frequency range	50–60 Hz, autosensing
Power consumption	350 W

Temperature and humidity

Cooling	Front-to-rear airflow temperature-controlled fans
Operating temperature	0°C–40°C (32°F–104°F)
Storage temperature	0°C–40°C (32°F–104°F)
Operating humidity	20%–80% relative humidity (noncondensing)

9.3 Compliance

The DP591 complies with the regulatory standards governing electronic equipment in North America and Europe.

Regulatory agencies

North America	UL and FCC compliant
Europe	CE compliant Complies with the European Union Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS), as amended by Commission Decisions 2005/618/EC, 2005/717/EC, 2005/747/EC (RoHS Directive), and WEEE.

Glossary

AES3

A standard jointly developed by the Audio Engineering Society (AES) and the European Broadcasting Union (EBU) that specifies serial transmission of two-channel linearly represented digital audio data on various media.

CRC

Cyclic redundancy check.

DHCP

Dynamic Host Configuration Protocol.

EBU

European Broadcasting Union. An alliance of public service media entities, based mainly in Europe.

HD

High definition.

IP

Internet Protocol.

IP address

Internet Protocol address. A numerical identifier assigned to a device that is a member of a network that uses the IP for communication.

kbps

Kilobits per second.

LED

Light-emitting diode.

MADI

Multichannel Audio Digital Interface. A communications protocol for an interface that carries multiple channels of digital audio, defined by the Audio Engineering Society. Also known as AES10.

PCM

Pulse code modulation. A method that is used to convert analog signals into digital, binary, coded pulses by sampling the analog signal, quantizing each sample independently, and converting the resulting quantized values into a digital signal.

SDI

Serial digital interface.

UI

User interface.

USB

Universal Serial Bus. A standard that defines the cables, connectors, and communications protocols used in connections between computers and electronic devices.

Vref

Video reference.

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