

# MODEL CP650

## DIGITAL CINEMA PROCESSOR

### CP650 Specifications

#### Signal Inputs

Optical: Balanced inputs for two projectors with stereo solar cells or analog LED readers, power available for external cell preamp circuits; 9-pin D-connectors

Digital film reader: Inputs for two Dolby Digital soundheads; 25-pin D-connectors

Nonsync: Two stereo inputs, 21 k $\Omega$ , sensitivity: 0.2–4 V (NS 1), 0.06–1.5 V (NS 2); RCA-type phono connectors

Six-channel analog input: For external digital processor, 10 k $\Omega$  (L, R), 27 k $\Omega$  (C, Ls, Rs, SW), 300 mV operating level; 25-pin D-connector

Microphone: Balanced input for Auditorium Assist microphone, PA mic, or B-chain alignment mic (or multiplexer), phantom power, rear-panel XLR, and front-panel 9-pin D-connector

4 AES-3 digital inputs accommodate up to eight channels of PCM audio at 48 or 44.1 kHz, also accept Dolby Digital bitstreams; input via 25-pin D-connector with optional adapter boards (Cat. No. 790 or Cat. No. 778)

110 $\Omega$   $\pm$ 20%, balanced (equipped with Cat. No. 778, four inputs), or 75 $\Omega$   $\pm$ 20%, single-ended (equipped with Cat. No. 790, four inputs)

#### Signal Outputs

Balanced, floating

Maximum level: +26 dBu (15.5 V), balanced loads; +20 dBu (7.75 V), unbalanced loads

Dolby level output adjust range: –31 to –12 dBu (20–780 mV)

#### Other Connections

Cat. No. 779 remote control unit and Cat. No. 771 remote fader connector (terminals for stripped wires)

Connectors (front and rear) for external PC control and setup, RS-232C (9-pin D-connector)

Hearing impaired output: center-weighted sum of L, R, and C; output level 200 mV fixed; unbalanced (RCA-type phono connector)

Automation connector for controlling and indicating format, fader select, and mute; interface similar to CP65

Connector for Ethernet link, RJ-45

#### Dolby Decoding

5.1 channels: Dolby Digital and Dolby Digital Surround EX

Four channels: Dolby A-type

Two channels: Dolby SR, Dolby Pro Logic<sup>®</sup>

#### Loudspeaker Equalization

L, C, R, Ls, Rs, Bsl, Bsr: digital 27-band, 1/3-octave, plus bass and treble control

Le, Re (when equipped with optional Cat. No. 791): digital 27-band, 1/3-octave, plus bass and treble control

SW: digital parametric with 12 dB cut capability

#### Distortion

Typically 0.005% in Dolby SR mode (output –10 dBu, input 10 dB over Dolby level)

#### Dynamic Range

Typically 99 dB with fader set to 7

#### Power Requirements

Main supply: 100–120 and 200–240 VAC, 50–60 Hz, 100 $\Omega$  maximum (including built-in bypass power supply)

Unit designed to operate from a centrally switched power source

#### Dimensions and Weight

3-U rack-mount chassis; faceplate: 133  $\times$  483 mm (5.25  $\times$  19 inches)

Maximum projection behind equipment rack rail: 365 mm (14.4 inches)

Maximum projection in front of mounting plate: 38 mm (1.5 inches)

Net: 10.4 kg (23 lb)

#### Environmental Conditions

Operating: 0 $^{\circ}$  to 40 $^{\circ}$ C (32 $^{\circ}$  to 104 $^{\circ}$ F), forced-air cooling

Humidity: 20 to 80% relative humidity, noncondensing

#### Regulatory Notices

North America: This unit complies with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules, and Industry Canada ICES-003 specifications. It is UL Listed for the US and Canada.

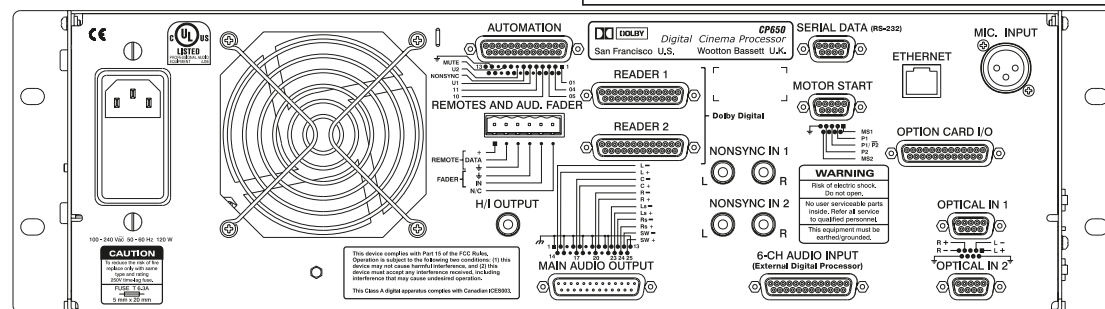
Europe: This unit complies with the requirements of Low Voltage Directive 73/23/EEC and EMC Directive 89/336/EEC and carries the CE marking accordingly.

#### Warranty

Two-year limited, parts and labor; see disclaimer below

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# MODEL CP650

## DIGITAL CINEMA PROCESSOR

The Dolby<sup>®</sup> CP650 Digital Cinema Processor is the exhibition industry's preferred cinema processor worldwide. Continuing the long evolution of Dolby cinema sound, it is the only all-digital cinema processor for the playback of all Dolby soundtrack formats, combining advanced signal-processing technology, highest-quality components, and sophisticated manufacturing processes to provide the best sound and utmost reliability.

Thanks to built-in features such as Dolby Digital Surround EX<sup>™</sup> decoding and four AES-3 digital inputs, the Dolby CP650 Digital Cinema Processor is the most cost-effective Dolby processor. Excellent reproduction of analog soundtracks is facilitated by fully digital implementations of Dolby A-type and Dolby SR decoding.

Addressing the future of exhibition, the Dolby CP650 has an expansion slot that provides a convenient upgrade path to new developments, such as multichannel audio decoding for digital cinema. Upgradable software also helps to ensure the CP650's role in the future, while a built-in Ethernet interface opens up a new world of remote control and monitoring applications.

External setup software (available in several languages) facilitates calibration, troubleshooting, software upgrades, and transferring settings via a personal computer. Connection ports are conveniently located behind a front-panel access door.

The Dolby CP650 features a built-in real-time analyzer and EQ Assist<sup>™</sup> system that enable quick theatre equalization. These features, combined with Auditorium Assist<sup>™</sup>, provide any theatre operator the necessary tools to keep their cinema operating just the same as the first day it opened. An easy-to-read LCD screen and simple front-panel format selection and control keys help simplify operation of the CP650, as well as installation and service.

Designed to satisfy the needs of today's multiplexes, the Dolby CP650 Digital Cinema Processor is also a bridge to the entertainment complex of the future for exhibitors dedicated to providing their audiences with the best motion picture presentation possible, both today and tomorrow.





Dolby Laboratories, Inc. 100 Potrero Avenue, San Francisco, CA 94103-4813 Telephone 415-558-0200 Fax 415-863-1373

Wootton Bassett, Wiltshire SN4 8QJ, England Telephone (44) 1793-842100 Fax (44) 1793-842101

For additional information, contact [salesadmin@dolby.com](mailto:salesadmin@dolby.com) [www.dolby.com](http://www.dolby.com)

The Dolby CP650 Digital Cinema Processor is available in the following four configurations:

CINEMA PROCESSORS				
	 CP650X0	 CP650	 CP650D	 CP650SR
<b>Supported Formats</b>				
Nonsync	■	■	■	■
PCM digital	■	■	■	■
External six-channel analog	■	■	■	■
Dolby analog (A-type and SR)	■	■	■	■
Dolby Digital (35 mm film)	■	■	■	■
Dolby Digital Surround EX	■	■	■	■
Dolby Digital (consumer version)	■	■	■	■
<b>Signal Inputs</b>				
Nonsync	■	■	■	■
External six-channel analog	■	■	■	■
Optical (balanced SVA for two projectors)	■	■	■	■
Microphone (balanced with phantom power)	■	■	■	■
Digital 4 × AES-3	■	■	■	■
<b>Audio Signal Outputs</b>				
Balanced Audio output	■	■	■	■
Impedance 100Ω (load >600Ω)	■	■	■	■
Maximum level +26dBu	■	■	■	■
Hearing impaired	■	■	■	■
<b>Computer Connections</b>				
RS-232C	■	■	■	■
Ethernet	■	■	■	■
<b>Upgrade Options</b>				
Dolby Digital (35 mm film)	■	■	■	UD/650; upgrade kit converts CP650SR to CP650D
Dolby Digital Surround EX	■	■	■	UEX/650; upgrade kit converts CP650D to CP650
Digital Crossover	■	■	■	UXO/650; upgrade kit converts CP650 to CP650X0
Auditorium Assist	Cat. No. 735 microphone kit	Cat. No. 735 microphone kit	Cat. No. 735 microphone kit	Cat. No. 735 microphone kit

Continuing to expand upon its innovative design, the Dolby CP650 Digital Cinema Processor now has three more features to provide for your cinema of the future.



Cat. No. 735 Microphone and "Auditorium Reference" setup screen

### CAT. NO. 735 AUDITORIUM ASSIST MICROPHONE

Providing a consistent entertainment experience—to match the first day your cinema opened for your audience—is the goal of every cinema operator. With Auditorium Assist, you now have a simple and reliable procedure to indicate the stability and characteristics of your theatre's speakers, crossovers, amplifiers, and auditorium acoustics.

After aligning your room per SMPTE/ISO standard 2969 (X-curve), the frequency response and sound level of each speaker are checked and stored in the Dolby CP650 memory as your "Auditorium Reference." Whenever Auditorium Assist is subsequently selected, all channels are measured and compared to these reference settings, notifying you of any changes from your approved "Auditorium Reference." Auditorium Assist also checks and compares the level of the ambient noise floor in the auditorium to the reference level originally stored.



Cat. No. 790 card

### CAT. NO. 790 DOLBY DIGITAL SURROUND EX CARD (with digital inputs)

The Cat. No. 790 card enables the CP650 to decode Dolby Digital Surround EX audio and additionally provides eight channels of digital inputs that allow your Dolby CP650 to accept digital audio from several sources (including servers, disks, tape playback systems, satellite, and cable links), which can then be fed into your existing sound system. The addition of the Cat. No. 790 makes the CP650 the most comprehensive cinema processor available.



Cat. No. 791 card and setup screen

### CAT. NO. 791 DIGITAL CROSSOVER CARD

The addition of the Cat. No. 791 Digital Crossover Card integrates two- or three-way (L, C, R) screen-channel crossovers within the CP650, allowing all the audio processing to remain in the digital domain. Combined with an extensive PC setup software package, a variety of settings, including five-screen channel support (depending on your screen channel configuration) is available to you for controlling the playback chain of your cinema.