Film-Tech

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These manuals are designed to facilitate the exchange of information related to cinema projection and film handling, with no warranties nor obligations from the authors, for qualified field service engineers.

If you are not a qualified technician, please make no adjustments to anything you may read about in these Adobe manual downloads

www.film-tech.com
WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

THIS APPARATUS MUST BE EARTHED.

For the customers in Europe

This product with the CE marking complies with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community. Compliance with these directives implies conformity to the following European standards:

• EN60950: Product Safety
• EN55103-1: Electromagnetic Interference (Emission)
• EN55103-2: Electromagnetic Susceptibility (Immunity)

This product is intended for use in the following Electromagnetic Environment(s):
E1 (residential), E2 (commercial and light industrial), E3 (urban outdoors) and E4 (controlled EMC environment, ex. TV studio).

Pour les clients européens


La conformité à ces directives implique la conformité aux normes européennes suivantes:
• EN60950: Sécurité des produits
• EN55103-1: Interférences électromagnétiques (émission)
• EN55103-2: Sensibilité électromagnétique (immunité)

Ce produit est prévu pour être utilisé dans les environnements électromagnétiques suivants:
E1 (résidentiel), E2 (commercial et industrie légère), E3 (urbain extérieur) et E4 (environnement EMC contrôlé ex. studio de télévision).

Für Kunden in Europa


Die Erfüllung dieser Direktiven bedeutet Konformität für die folgenden Europäischen Normen:
• EN60950: Produktsicherheit
• EN55103-1: Elektromagnetische Interferenz (Emission)
• EN55103-2: Elektromagnetische Empfindlichkeit (Immunität)

Dieses Produkt ist für den Einsatz unter folgenden elektromagnetischen Bedingungen ausgelegt:
E1 (Wohnbereich), E2 (kommerzieller und in beschränktem Maße industrieller Bereich), E3 (Stadtbereich im Freien) und E4 (kontrollierter EMV-Bereich, z.B. Fernsehstudio)
WARNING: THIS WARNING IS APPLICABLE FOR USA ONLY.
If used in USA, use the UL LISTED power cord specified below.
DO NOT USE ANY OTHER POWER CORD.

Plug Cap  Parallel blade with ground pin (NEMA 5-15P Configuration)
Cord Type SJT, three 16 or 18 AWG wires
Length Less than 2.5 m (8 ft 3 in)
Rating Minimum 10 A, 125 V

Using this unit at a voltage other than 120 V may require the use of a different line cord or attachment plug, or both. To reduce the risk of fire or electrical shock, refer servicing to qualified service personnel.

WARNING: THIS WARNING IS APPLICABLE FOR OTHER COUNTRIES.

1. Use the approved Power Cord/Plug with earthing-contacts that conforms to the safety regulations of each country if applicable.
2. Use the Power Cord/Plug conforming to the following ratings, which meets power supply voltage of each country.
   • Rating: 10 A or more

AVERTISSEMENT: CET AVERTISSEMENT EST VALABLE POUR LES AUTRES PAYS.

1. Utilisez le cordon et la fiche d’alimentation avec prise de terre, approuvé et conforme à la réglementation relative à la sécurité, adoptée par chaque pays.
2. Utilisez le cordon et la fiche d’alimentation correspondant aux caractéristiques suivantes, en fonction de la tension d’alimentation secteur de chaque pays.
   • Ampérage: 10 A ou plus

WARNUNG: Die folgenden Warnungsangaben gelten für das Modell für andere Länder.

1. Das Nezkabel/der Netzstecker mus einen Erdungskontakt besitzen und den Sicherheitsbestimmungen Ihres Landes genügen.
2. Das Netzkabel muß je nach der Netzspannung Ihres Landes für folgende Spannungen und Ströme ausgelegt sein.
   • Stromstärke 10 A oder mehr
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Overview

Overview of SDDS Player System

The SDDS (Sony Dynamic Digital Sound)
1) Player System is a system that reads digital audio data recorded on 35 mm movie film in the SDDS format, and feeds high quality digital sound to a theater sound system.

A movie film should be played back without any breaks. The digital audio signals recorded on the P side and S side of the 35 mm film are corrected by the error correction circuit. Furthermore, if a problem where the audio signal cannot be corrected by the error correction circuit occurs, a film in the SDDS format can be corrected by reading the backup data recorded on the other side of the film and played back immediately. This allows the system to continue playback without any breaks.

The SDDS system has a wide range of functions and capabilities designed to meet the rigorous standards of film sound post-production and of the exhibition cinema. The system is also designed to be configured in a number of variations for maximum flexibility in installation.

Principal Features

This system is comprised of the DFP-R3000 Digital Film Sound Reader and the DFP-D2500 Film Sound Decoder.

The principal features of this system are as follows.

Playback of 8 channels of digital audio signals recorded in the SDDS format

The system can read 8 channels of digital audio signals recorded in the SDDS format on the P (picture) and S (sound) sides of the film. It features digital processing, for little or no signal degradation during playback.

<table>
<thead>
<tr>
<th>P side</th>
<th>C (center)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L (left)</td>
</tr>
<tr>
<td></td>
<td>LC (left center)</td>
</tr>
<tr>
<td></td>
<td>SL (surround left)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S side</th>
<th>R (right)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RC (right center)</td>
</tr>
<tr>
<td></td>
<td>SR (surround right)</td>
</tr>
<tr>
<td></td>
<td>SW (sub-woofer)</td>
</tr>
</tbody>
</table>

Fully digital audio signal path

The DFP-D2500 is a digital cinema processor that utilizes Digital Signal Processing (DSP) techniques to perform essential SDDS track decoding and room equalization. The unit performs all audio signal processes in the digital domain. Analog input signals are first converted to 20 bit PCM data, then processed. Therefore, adjustments that have been historically performed in the analog domain (i.e., volume adjustment, room equalization, etc.), can now be adjusted digitally. This ensures more stable room equalization and audio volume adjustment in the theater.

High quality A/D and D/A converters

High quality 20-bit A/D and 20-bit D/A converters are used to ensure the optimum resolution of the input and output signals. These converters are operated at a sampling frequency (Fs) of 44.1 kHz (44,100 samples per second).

Bypass function

The DFP-D2500 can output the auxiliary input signals with or without processing by equalizers or for level control. This allows the unit to connect to various types of devices.

1) SDDS is a registered trademark of Sony Corporation.
Note

For details about installation and connection of this system, contact your Sony service or sales representative.
Location and Function of Parts

DFP-D2500 Front Panel

1. **Power switch**
   - Shows the level of each channel.

2. **Level meters**
   - Show the level of each channel.

3. **SYSTEM OK indicator**
   - Lights when the SDDS player system is operating normally, and goes out when the SDDS player system error occurs.
   - Goes out to indicate a system warning, for example that the fan has stopped rotating or that there is no backup battery.

4. **PROJECTOR indicators**
   - During playback with a changeover system, shows which of the projectors is currently in use.

5. **EXT FADER indicator**
   - Lights when the remote fader connected to the REMOTE LEVEL CONTROL connector activates.
   - When this indicator is lit, the MASTER VOLUME control becomes disabled.

6. **DATA PRESENT indicator**
   - Lights when the unit is reading SDDS digital audio signals and can play back.

7. **SDDS STATUS indicators**
   - Indicates the playback condition of digital audio signals in the SDDS format.

- **P green/yellow/red indicators**: Each indicator indicates a playback condition of the digital signals recorded on the P (picture) side of the film.
- **S green/yellow/red indicators**: Each indicator indicates a playback condition of the digital signals recorded on the S (sound) side of the film.
When a green indicator is lit, the signals are being played back correctly. When a red indicator goes on frequently, it indicates that the film quality may have degraded or the machines may be in need for maintenance. Even when one red indicator is lit, the unit can continue playback without any trouble unless the DATA PRESENT indicator is lit.

8 MASTER LEVEL display
Shows the master level.

9 MASTER VOLUME dial
The master volume dial is a rotary encoder which is used to control the master volume level of all channel outputs from the Sony DFP-D2500. This volume control allows the user to set the master volume level between +10dB and –∞.

10 AUX button
Press this button twice to select analog audio auxiliary signals input to the AUX INPUT connector. When you press this button first time, the button indicator blinks. When you press the button again, the button lights. This is a safety feature to ensure the proper selection. Thus, even when you press the button accidentally, the input signal will not be changed unless you press the button again.

11 SDDS button
Press this button twice to select digital audio signals recorded in the SDDS format as an input. When you press this button first time, the button indicator blinks. When you press the button again, the button lights. This is a safety feature to ensure the proper selection. Thus, even when you press the button accidentally, the input signal will not be changed unless you press the button again.

12 MUTE button
Press this button, turning it on, to mute system output.

13 BYPASS button
Press this button to output the audio signals input to the AUX INPUT connector without any processing. However, when the power of the unit is turned off and while the system is starting up, the unit is in this bypass mode where auxiliary input signals are output without any processing.

14 REMOTE indicator
Lights when the system is being controlled remotely. For details, contact your Sony service or sales representative.
DFP-D2500 Connector Panel

1 **SYSTEM OUTPUT connector**
Balanced 8-channel analog audio output connector. This connection is used to connect to the amplifier system of the theater “B-Chain”.

2 **REMOTE LEVEL CONTROL connector**
Connect external remote fader (100 kΩ Type B Curve).

3 **READER 1/2 connectors**
Connect to the DFP-R3000 for input of digital audio signals read from the film. Use the READER 1 connector in a system with one projector, and use both the READER 1 and READER 2 connectors in a changeover playback system.

4 **AC IN ~ socket**
Connect the power cord.

5 **RS-422 connector**
Connect the central control equipment of the theater. 
*For details, contact your Sony service or sales representative.*

6 **RS-232C connector**
Connect an IBM PC/AT or compatible computer. 
*For details, contact your Sony service or sales representative.*

7 **AUTOMATION connector**
This is a connector for automatic system control. 
*For details, contact your Sony service or sales representative.*

8 **AUX INPUT connector**
Balanced 8-channel analog audio input connector. This connector can be used to interface playback systems from other manufacturers to the DFP-D2500.
DFP-D2500 Connector Pin Assignment

1 SYSTEM OUTPUT connector

2 REMOTE LEVEL CONTROL connector

3 AUX INPUT connector

Pin No. Signal
1 LEFT GND
2 LEFT HOT
3 LEFT CENTER COLD
4 CENTER GND
5 CENTER HOT
6 RIGHT CENTER COLD
7 RIGHT GND
8 RIGHT HOT
9 SURROUND LEFT GND
10 SURROUND LEFT COLD
11 SURROUND RIGHT COLD
12 SUB WOOFER COLD
13 SUB WOOFER GND
14 LEFT COLD
15 LEFT CENTER GND
16 LEFT CENTER HOT
17 CENTER COLD
18 RIGHT CENTER GND
19 RIGHT CENTER HOT
20 RIGHT COLD
21 NC
22 SURROUND RIGHT GND
23 SURROUND LEFT HOT
24 SURROUND RIGHT HOT
25 SUB WOOFER HOT

Pin No. I/O Signal
1 – GND
2 I MAN FADE
3 –
4 –
5 I EXT FADER EN
6 I AUTO FADE
7 O DC
8 O REMTLY
9 – GND

Pin No. Signal
1 DC 24V
2 NC
3 GND(DC24V)
4 CABLE SHIELD
A1 DATA
G1 DATA GND
RS-422 connector

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>I/O</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>–</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>O</td>
<td>RTS(+)</td>
</tr>
<tr>
<td>3</td>
<td>O</td>
<td>RTS(−)</td>
</tr>
<tr>
<td>4</td>
<td>O</td>
<td>TXD(+)</td>
</tr>
<tr>
<td>5</td>
<td>O</td>
<td>TXD(−)</td>
</tr>
<tr>
<td>6</td>
<td>I</td>
<td>CTS(+)</td>
</tr>
<tr>
<td>7</td>
<td>I</td>
<td>CTS(−)</td>
</tr>
<tr>
<td>8</td>
<td>I</td>
<td>RXD(+)</td>
</tr>
<tr>
<td>9</td>
<td>I</td>
<td>RXD(−)</td>
</tr>
</tbody>
</table>

RS-232C connector

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>I/O</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>–</td>
<td>NC</td>
</tr>
<tr>
<td>2</td>
<td>I</td>
<td>RXD</td>
</tr>
<tr>
<td>3</td>
<td>O</td>
<td>TXD</td>
</tr>
<tr>
<td>4</td>
<td>O</td>
<td>DTR</td>
</tr>
<tr>
<td>5</td>
<td>–</td>
<td>GND</td>
</tr>
<tr>
<td>6</td>
<td>–</td>
<td>NC</td>
</tr>
<tr>
<td>7</td>
<td>O</td>
<td>RTS</td>
</tr>
<tr>
<td>8</td>
<td>I</td>
<td>CTS</td>
</tr>
<tr>
<td>9</td>
<td>–</td>
<td>NC</td>
</tr>
</tbody>
</table>
### AUTOMATION connector

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>I/O</th>
<th>Function</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>–</td>
<td>Chassis Ground</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>I</td>
<td>Projector 1 Motor Start</td>
<td>Input: LOW = MOTOR 1 RUNNING</td>
</tr>
<tr>
<td>3</td>
<td>I</td>
<td>Master Mute Command</td>
<td>Input pulse: Low = MUTE or UNMUTE</td>
</tr>
<tr>
<td>4</td>
<td>I/O</td>
<td>Preset 1 Select (SDDS)</td>
<td>Input pulse: Low = SELECT</td>
</tr>
<tr>
<td>5</td>
<td>I/O</td>
<td>Preset 2 Select (AUX)</td>
<td>Input pulse: Low = SELECT</td>
</tr>
<tr>
<td>6</td>
<td>–</td>
<td>Reserved</td>
<td>No connections</td>
</tr>
<tr>
<td>7</td>
<td>–</td>
<td>Reserved</td>
<td>No connections</td>
</tr>
<tr>
<td>8</td>
<td>–</td>
<td>Reserved</td>
<td>No connections</td>
</tr>
<tr>
<td>9</td>
<td>–</td>
<td>Reserved</td>
<td>No connections</td>
</tr>
<tr>
<td>10</td>
<td>–</td>
<td>Reserved</td>
<td>No connections</td>
</tr>
<tr>
<td>11</td>
<td>–</td>
<td>Reserved</td>
<td>No connections</td>
</tr>
<tr>
<td>12</td>
<td>O</td>
<td>MOTOR 1 Start Tally</td>
<td>Output tally: Low = MOTOR 1 RUNNING</td>
</tr>
<tr>
<td>13</td>
<td>O</td>
<td>MOTOR 2 Start Tally</td>
<td>Output tally: Low = MOTOR 2 RUNNING</td>
</tr>
<tr>
<td>14</td>
<td>–</td>
<td>Logic Common</td>
<td>GND</td>
</tr>
<tr>
<td>15</td>
<td>–</td>
<td>Logic Common</td>
<td>GND</td>
</tr>
<tr>
<td>16</td>
<td>–</td>
<td>Tally Common</td>
<td>GND</td>
</tr>
<tr>
<td>17</td>
<td>–</td>
<td>Tally Common</td>
<td>GND</td>
</tr>
<tr>
<td>18</td>
<td>I</td>
<td>Optical Change Over Command</td>
<td>Input: Low = PEC 2, High = PEC 1</td>
</tr>
<tr>
<td>19</td>
<td>O</td>
<td>Optical Change Over Tally</td>
<td>Output tally: Low = PEC 2 selected</td>
</tr>
<tr>
<td>20</td>
<td>O</td>
<td>Projector 1 Tally</td>
<td>Output tally: Low = SDDS Reader 1 selected</td>
</tr>
<tr>
<td>21</td>
<td>O</td>
<td>Projector 2 Tally</td>
<td>Output tally: Low = SDDS Reader 2 selected</td>
</tr>
<tr>
<td>22</td>
<td>O</td>
<td>Master Mute Tally</td>
<td>Output tally: Low = Master muted</td>
</tr>
<tr>
<td>23</td>
<td>I</td>
<td>Pink Noise Command</td>
<td>Input: Low = ON</td>
</tr>
<tr>
<td>24</td>
<td>–</td>
<td>Reserved</td>
<td>No connections</td>
</tr>
<tr>
<td>25</td>
<td>–</td>
<td>Reserved</td>
<td>No connections</td>
</tr>
<tr>
<td>26</td>
<td>–</td>
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<td>No connections</td>
</tr>
<tr>
<td>27</td>
<td>–</td>
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</tr>
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<td>28</td>
<td>–</td>
<td>Reserved</td>
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</tr>
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<td>29</td>
<td>–</td>
<td>Reserved</td>
<td>No connections</td>
</tr>
<tr>
<td>30</td>
<td>O</td>
<td>+5V</td>
<td>Power</td>
</tr>
<tr>
<td>31</td>
<td>O</td>
<td>+5V</td>
<td>Power</td>
</tr>
<tr>
<td>32</td>
<td>O</td>
<td>SDDS Data OK (any preset active)</td>
<td>Output pulse: Low = SDDS OK</td>
</tr>
<tr>
<td>33</td>
<td>I</td>
<td>Projector 2 Motor Start</td>
<td>Input: Low = MOTOR 2 RUNNING</td>
</tr>
<tr>
<td>34</td>
<td>–</td>
<td>Reserved</td>
<td>No connections</td>
</tr>
<tr>
<td>35</td>
<td>–</td>
<td>Reserved</td>
<td>No connections</td>
</tr>
<tr>
<td>36</td>
<td>O</td>
<td>SDDS Data not OK</td>
<td>Output pulse: Low = SDDS NG</td>
</tr>
<tr>
<td>37</td>
<td>I</td>
<td>EXT FADER Command</td>
<td>Input pulse: Low = Ex fader ON/OFF</td>
</tr>
</tbody>
</table>
Loading Film other than SDDS

1 Pull out a suitable length of film from the supply reel, and feed it along the path indicated by PASS on the front panel.

2 Pass the film through the projector and take it up on the takeup reel, just as you would with ordinary movie film.

3 Return the pad roller to the original position.

Handling SDDS film

- Avoid marking the SDDS data tracks using either adhesive labels or ink. If it is essential, keep any marks within a frame.
- The splice length should also be not more than a frame.

1 Release the pad roller.

2 Pull out a suitable length of film from the supply reel, and feed it along the path indicated by the black line on the front panel.

**Note**

When other audio playback equipment is equipped between the DFP-R3000 and projector, be sure to feed the film with bypassing the other equipment.

3 Pass the film through the projector and take it up on the takeup reel, just as you would with ordinary movie film.

4 Return the pad roller to the original position.
## Specifications

### SDDS Digital Audio Signals

- **Number of channels**: 8
- **Channel assignments**:
  - L: Left
  - LC: Left center
  - C: Center
  - RC: Right center
  - R: Right
  - SW: Sub-woofer
  - SL: Surround left
  - SR: Surround right
- **Sampling frequency**: 44.1 kHz
- **Frequency response**: 20 Hz to 20 kHz ±1.0 dB
- **Dynamic range**: More than 90 dB
- **Distortion**: Less than 0.07%
- **Crosstalk**: Less than –80 dB
- **Output level**: –10 dBu balanced (factory setting)

### General

### DFP-R3000 Digital Film Sound Reader

- **Power requirements**: DC +24 V (400 mA)
- **Power consumption**: 9.6 W
- **Operating temperature**: 5 °C to 40 °C (41 °F to 104 °F)
- **Operating humidity**: 10 % to 90 % (relative humidity)
- **Storage temperature**: –20 °C to +60 °C
  (-4 °F to +140 °F)
- **Mass**: 3.5 kg (7.7 lb)
- **Dimensions (w/h/d; excluding projections)**: 240 mm × 156 mm × 176 mm
  (9½ × 6¼ × 7 inches)
- **Film width**: 35 mm

### DFP-D2500 Digital Film Sound Decoder

- **Power requirements**: 100 to 240 V AC, 50/60 Hz
- **Power consumption**: 1.0 A
- **Peak inrush current**:
  1. Power ON, current probe method: 80 A (240 V), 30 A (100 V)
  2. Hot switching inrush current, measured in accordance with European standard EN55103-1: 70 A (230 V)
- **Appel de courant de crête**:
  1. Mise sous tension (ON), méthode de sondage du courant: 80 A (240 V), 30 A (100 V)
  2. Mesuré conformément à la norme européenne EN55103-1: 70 A (230 V)
- **Spitzenstrom**:
  1. Einschaltstrom, Stromsonde: 80 A (240 V), 30 A (100 V)
  2. Gemessen in EN55103-1: 70 A (230 V)
- **Operating temperature**: 5 °C to 40 °C (41 °F to 104 °F)
- **Operating humidity**: 10 % to 90 % (relative humidity)
- **Storage temperature**: –20 °C to +60 °C
  (-4 °F to +140 °F)
- **Mass**: Approx. 8 kg (17 lb 10 oz)
- **Dimensions (w/h/d; including projections)**: 482 mm × 103 mm × 361 mm
  (19 × 3½ × 14¼ inches)
- **EIA rack mount space**: Height EIA 19-inch rack size 2 units (88 mm, 3½ inch, not including feet)
- **Lock-in time**: 1 second max.
- **Lock range**: Rated speed ±5 %
- **Sync drift**: 20 msec max.
- **Sync drift rate**: 10 Hz/sec max.
## Specifications

### I/O Characteristics

**PROJECTOR I/O**
READER 1/2 connectors  
5W1 connector (2)

**INPUT**
AUX INPUT connector  
L, LC, C, RC, R, SW, SL, SR  
D-sub 25-pin, female (2)  
Impedance  
10 kΩ min.  
Reference level  
–8.2 dBu

**OUTPUT**
SYSTEM OUTPUT connector  
L, LC, C, RC, R, SW, SL, SR  
D-sub 25-pin, male (1)  
Load impedance  
600 Ω max.  
Reference level  
–10 dBu

**CONTROL I/O**
REMOTE LEVEL CONTROL connector  
D-sub 9-pin, female (1)  
Input voltage  
0 to +10 V  
AUTOMATION connector  
D-sub 37-pin, female (1)  
RS-232C connector  
D-sub 9-pin, female (1)  
Transmission rate  
19.2 kbps  
RS-422 connector  
D-sub 9-pin, female (1)  
Transmission rate  
9.6 kbps

### Accessories and Related Equipment

**Accessories supplied**

**DFP-R3000**
Operation guide (1)  
Reader cable (1)  
Reader mount kit (1 set)

**DFP-D2500**
Operation manual (1)

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