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SONY

Sony Cinema Products Corporation

Tech Note

Connecting the Sony DFP-3000 to the Dolby™ CP500 with the DFP-D3000 as master.

Product: DFP-D3000.
S/N: All Sony units with firmware version 2.60 and higher; Dolby CP500 units with firmware v1.51 or higher and control board cat. 684 Rev 1 or higher.
Document: **TN99061401**, TS/CC
Summary: Connecting the Sony DFP-3000 to the Dolby CP500 with the DFP-3000 as master.

Connecting the DFP-3000 to the CP500 is complicated by the possibility of various firmware versions. This document describes the approach when using the most recent versions for each product. Each step must be followed very carefully to avoid problems. If you have earlier versions of firmware, see your Sony or Dolby representative to receive the latest versions.

Functions of the CP500.

With the firmware and cat. 684 card versions described above, the CP500 supplies output pulse tallies for every preset selected. When in fallback, the CP500 does not change its format status bit but instead actually changes presets and so sends pulse tally outputs that the DFP-D3000 can use to select presets within it to deal appropriately with the CP500's fallback.

Functions of the DFP-3000.

The DFP-D3000 has a very comprehensive fallback system. This system uses OK/NG tally inputs to tell the DFP-3000 whether attached digital processors are delivering correct audio outputs. Unfortunately, the CP500 (without internal modifications) fails to deliver level logic OK/NG signals. This means that the DFP-3000 fallback system cannot be used. However, the DFP-D3000 accepts pulse logic inputs to trigger preset selections. Although this is a less powerful approach than using the DFP-D3000's fallback system, the CP500 does produce output tally pulses which can be used to trigger preset changes in the DFP-D3000 and achieve results similar to using fallback logic.

Strategy.

Given the logic conditions described above, what must be done is to use tallies from the CP500 to tell the DFP-D3000 to select alternate presets when SRD data is invalid and also to use tallies from the DFP-D3000 to switch the CP500 out of Dolby Digital mode when SDDS data is valid. The instructions of this Tech Note imply that the CP500 will be used to play SR-D only and the superior processor and B-chain capabilities of the DFP-D3000 will be used as the master control for the theatre.

Logic wiring connections.

DFP-D3000 Automation I/O connector (DB37 Female D-Sub)	CP500 Automation connector (DB25 Female D-Sub)
Pin 8, Preset 5 select (NR2)	Pin 3, SK 3 format select (Dolby SR)
Pin 9, Preset 6 select (AUX 1)	Pin 4, SK 4 format select (Dolby Digital)
Pin 14, Logic common	Pin 12, Ground
Pin 11, Preset 8 select (SDDS) - shorted to - Pin 32, SDDS Data OK	Pin 6, SK 6 format select (Non Sync 1)
Pin 36, SDDS Data not OK	Pin 2, SK2 format select (Dolby A)
Pin 15, Logic common - shorted to - Pin 34, AUX1 Digital Data OK	

Audio wiring connections.

DFP-D3000 AUX INPUT 1/2 (DB25 Female D-Sub)	CP500 Main / LF Output Connector (15 pin Phoenix type, Male)
1 Left ground	NC
2 Left hot (+)	1 Left Channel
4 Center ground	NC
5 Center hot (+)	5 Center Channel
7 Right ground	NC
8 Right hot (+)	3 Right Channel
9 Left Surround ground	NC
10 Left Surround cold (-)	8 Signal Ground
11 Right Surround cold (-)	10 Signal Ground
12 Subwoofer cold (-)	12 Signal Ground
13 Subwoofer ground	NC
14 Left cold (-)	2 Signal Ground
17 Center cold (-)	6 Signal Ground
20 Right cold (-)	4 Signal Ground
22 Right Surround ground	NC
23 Left Surround hot (+)	7 Left Surround Channel
24 Right Surround hot (+)	9 Right Surround Channel
25 Subwoofer hot (+)	11 Subwoofer Channel

Note that the inputs of the DFP-3000 are professionally balanced, whereas the outputs of the CP500 are not. All DFP-D3000 audio grounds should be connected to the shield of each twisted pair at the D3000 end only.

Procedures for setting up the CP500.

Confirm that the CP500 is equipped with firmware version 1.51 or higher

The CP500 must be set up with the "auto digital" function enabled by referring to the CP500 Installation Manual. The only source format for "auto digital" should be Dolby A (SK 2), whereas the target format should be Dolby Digital (SK4). It is crucial that Dolby SR (SK3) is not assigned as a source format for auto digital.
These instructions assume that the CP500 is configured for Dolby A on SK2, Dolby SR on SK 3, Dolby Digital on SK 4 and Non Sync 1 on SK6.

Audio levels and the CP500.

Make sure that the output levels on all channels of the CP500 are set to the reference input level (-8.2 dBu, which is about 300 mV or –10dBV) of the AUX 1 input.

During operation, ensure that the master fader on the CP500 is disabled or kept at 7.0 at all times.

Setting up the DFP-3000.

The automation wiring table above is made with the assumption that the DFP-D3000 is configured for SDDS on Preset 8 and that Dolby Digital is on Preset 6 (using the AUX1 input). We recommend that you don't change Preset assignments from the defaults unless there is a strong requirement for doing so. If Preset assignments are to be changed, we recommend setting up the theatre completely and confirming that all is working correctly before making the reassignments.

The following fallback structure must be set in the DFP-3000:
SDDS → [AUX 2] → NR2

If any theatre EQ is set up in the CP500, make sure that the theatre EQ for the applicable preset (Preset 6) on the DFP-D3000 is switched off. The same applies to surround delays. Generally, the EQ and surround delay settings of the DFP-3000 should be used in preference to those of the CP500.

Changeover wiring.

For changeover installations, make the following connections to forward the necessary motor start and changeover information to the CP500.

DFP-D3000 Automation I/O connector (DB37 Female D-Sub)	**CP500 Motor start connector (DB9 Female D-Sub)**
Pin 12, motor 1	Pin 1, motor start, projector 1
Pin 13, motor 2	Pin 9, motor start, projector 2
Pin 19, c/o command, tally	Pin 3, changeover relay
Pin 16, tally common	Pin 5, GND