**Dual-link 4:4:4 synchronous record/play
by using two JP2pro 750R recorders and
SYNCHRO-CONT 2000**

Important note and operational procedure for the Dual-link 4:4:4
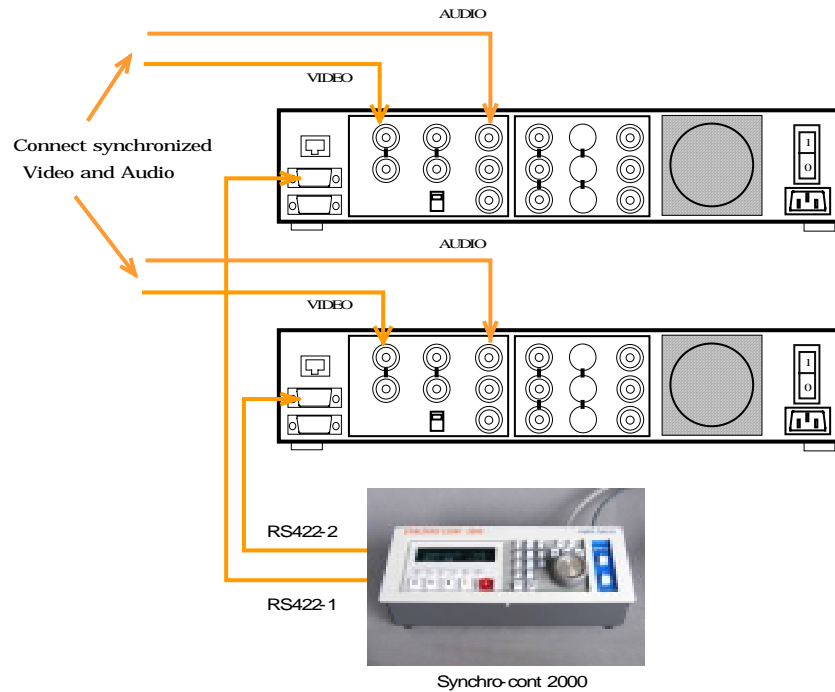
OUTLINE

4:4:4 signal is transmitted on the Dual-link HD-SDI as full samples of G and every other samples of B and R are located in the Link-A, and remaining every other samples of B and R are located in the Link-B (SMPTE372M). So the B and R signals in each link have a sub-sample structure. If we compress this signal by lossy compression mode, we have some aliasing artifact on the decoded picture. So the compression scheme must be the **reversible lossless** compression.

Requirements

The disk configuration of the JP2pro 750R must be the **RAID-0 (Striping)** when using the Lossless compression mode.

Almost all set-ups for two JP2pro 750R recorders (responsible for the Link-A and the Link-B) must be the same. Especially:

1   The recorded contents must have the same REC file number.
2   Two machines must have the same time code value.
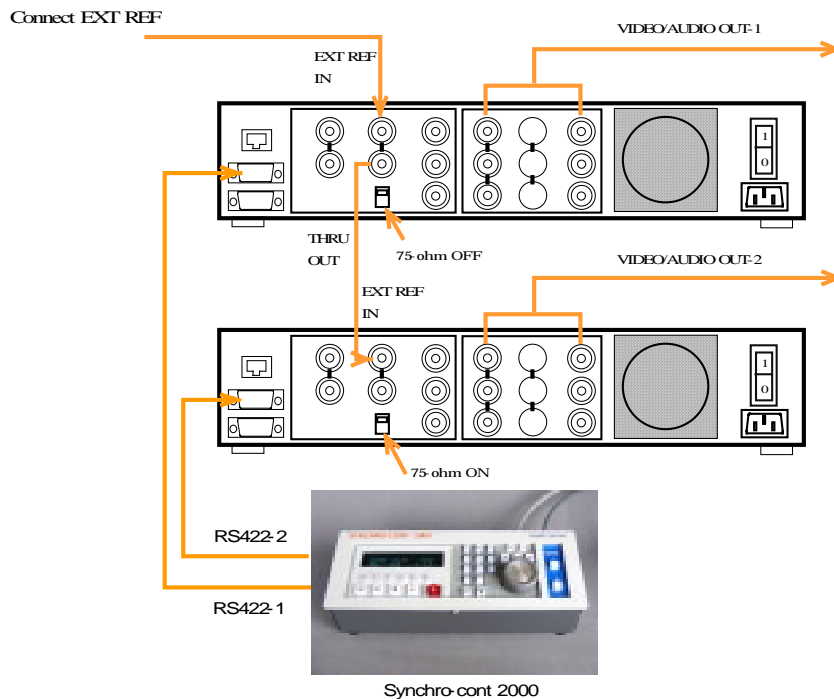3   Two machine are synchronized with the same reference signal.

Connections for recording

Synchro-cont 2000

Please connect synchronized video and audio signals to the VIDEO IN and AUDIO IN. Embedded audio can be used also.

Please connect the Remote 1 of the Synchro-cont 2000 to the Master machine (Link-A) and the Remote 2 to the Slave machine (Link-B) with the RS-422 cables.

External time code can be used if there is no VITC. Also internal time code can be selected.

Connections for playback

Connect EXT REF

VIDEO/AUDIO OUT-1

EXT REF
IN

THRU
OUT

75-ohm OFF

VIDEO/AUDIO OUT-2

EXT REF
IN

75-ohm ON

RS422-2

RS422-1

Synchro-cont 2000

The embedded audio can be used also.

Please connect the Remote 1 of the Synchro-cont 2000 to the Master machine (Link-A) and the Remote 2 to the Slave machine (Link-B) with the RS-422 cables.

Please connect the same external reference signal to the EXT REF IN. If there is no external reference signal, you can get synchronization as connecting the VIDEO OUT of the Master machine to the VIDEO INPUT of the Slave machine. In this case the "INPUT" should be selected as the GL Source. The Master machine works in the INTERNAL mode and the Slave machine is locked to the VIDEO INPUT.

   CAUTION   The settings of the H-Phase and V-Phase must be zero, otherwise the output phase of two machines is not coincident.

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Preparation before operation

1. Confirmation of REMOTE/LOCAL switch

If the JP2pro 750R in use is a standard type (No front control panel), you should confirm the switch position of the L/R (Local/ Remote) switch that is located behind the front panel. This L/R switch must be in REMOTE position as illustrated below.

(CAUTION) if the switch is in LOCAL position, the controls from the Synchro-cont 2000 are not accepted and validated by JP2pro 750R.

L/R switch. This figure shows the REMOTE position.

2. Making set-ups of two machines identical

After connecting the RS-422 cables between the Synchro-cont 2000 and two JP2pro 750R recorders, please open the Synchro-cont 2000 MENU and set the following items again. Each item must be selected and push the SET button even when the items seem as if being selected

(CAUTION) If you don't execute this re-setting, it is possible to see unexpected troubles caused by discrepancy between two machines

(1) **CONF** (Configuration): In the CONF menu, please select the "RAID-0" and push the SET button. Then execute the "HDD-Erase" (Formatting). If both machines are already working in the RAID-0, there is no need to do this item. In this case, if there is a difference in the REC file numbers, please make the number exactly the same by adding the recording of several seconds to the machine with fewer REC files.

(2) **TC** (Time code): Please set again for desirable settings.

(3) **GL** (Gen-lock): We recommend selecting the "INPUT" for recording. The H-Phase and V-Phase should be set to zero again. The Fixed-standard mode should be set again to OFF if you use the standards other than the 1080i/59.94. The PSF-mode should be set again for preferable state.

(4) **TSG**: Please set both Video and Audio OFF.

(5) **AUD** (Audio): Please set again for desirable settings.

(6) **VID** (Video): Please set again for desirable settings. The Quality must be the LOSSLESS.

(7) **LIST**: Please select the "CLEAR ALL" and execute the deletion of all CUEs and CLIPs.

(8) **CONT** (Control): Please set again as REC-Mode　NORM, LOOP-REC=OFF and PLAY-Mode=NORM.

Record operation

1　**Time code set**

If you want to use the "Internal-REC" mode for Time Code Generation, please RESET or PRESET the TC value before recording.

2　**Make the recorders in EE mode**

Please push the **REC** button alone to get the EE mode. The recorder start to lock to the INPUT. Please confirm that EXT LEDs on the front panel of both machines illuminate in GREEN.

(CAUTION) If the recording starts before complete phase lock, it is possible that synchronization of two machines is incomplete.

3　**Start recording**

Please start the recording by pushing and holding the **REC** button at first then pushing **PLAY** button. Please observe the monitor to confirm that the video, audio and the TC are all normal.

Playback operation

1　**Make the recorders in PB mode**.

Please push the **SFT** (Shift) key and the **REC** button simultaneously to get the PB mode. The recorder start to lock to the EXT (or INPUT). Please confirm that EXT LEDs on the front panel of both machines illuminate in GREEN.

2　**Position to the start point**

Please push **SFT** (Shift) key and the **REW** button simultaneously to search the start position of the recorded file. If you want to start playback on the other position, please use Search function. Please observe the monitor to confirm that synchronization of two machines are perfect.

3　Start playback

Please push the **PLAY** button for start playback.

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(CAUTION) It is possible that synchronization corrupts by repeating PLAY and STOP many times. In such a case please push Mark button at the stop point and then push the Srch button. The synchronization recovers. Also the synchronization is not guaranteed in FF, REW and SHUTTLE. Please make the same Mark/Srch procedure for recovering.