SONY®

Solid-State Memory Camcorder

PMW-F3K
PMW-F3L

Supplement

Table of Contents

Foreword

This supplement contains the following supplementary information about the PMW-F3K/F3L.
• Using an External Hard Disk
• Using a Media Adaptor
• Operating via the REMOTE Connector
• Using a Wi-Fi Adapter
• Using the 3D-Link function
• Setting S-Log gamma and monitor image
• Output Formats and Limitations

Using an External Hard Disk

You can use an optional PHU-120R Professional Hard Disk Unit with this camcorder.

Notes

• High-speed playback may not be properly achieved with the PHU-120R.
• Slow Motion recording by the Slow & Quick Motion recording function cannot be made with the PHU-120R.

Attaching the PHU-120R

Recording/playback can be made using the PHU-120R in the same manner as with SxS memory cards if you connect the PHU connection cable of the PHU-120R to an SxS memory card slot of the camcorder.

Connecting the PHU connection cable

1 **Set the power switch of the camcorder to the ON position.**

2 **Open the cover of the card slot block and plug the PHU connection cable into a slot.**
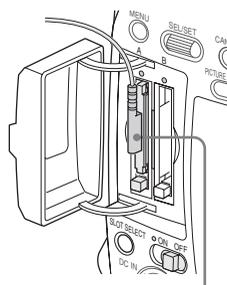
Insert so that the cable extends upward.

3 **Turn on the PHU-120R.**

The POWER indicator of the PHU-120R lights in green.
Subsequently, the access lamp of the camcorder lights in red then changes to green once the unit is ready for use.

Notes

- The cover of the card slot block cannot be closed with the PHU-120R connected.
- Bundle the cable so that it will not accidentally get on nearby objects.

To disconnect the PHU connection cable

Operate in the same manner as when you remove an SxS memory card from the slot.

Formatting the PHU-120R

For a PHU-120R that is not formatted or that was formatted with another system, the message "Unsupported File System" is displayed on the LCD monitor/viewfinder screen.
Format the PHU-120R as instructed below.

To execute formatting

Using "Format Media" of the OTHERS menu, specify "Media(A)" (slot A) or "Media(B)" (slot B) then select "Execute." On a confirmation message, select "Execute" again.

Formatting begins.
An in-progress message and status bar (%) are displayed, and the access lamp lights in red.
When formatting is completed, a completion message is displayed for three seconds.

Notes

- Formatting for the PHU-120R on this camcorder is "Quick Format" with which only the managerial data are erased. To erase the recording data completely, connect the unit to a PC and perform "Full Format."
- The PHU-120R to be used with this camcorder must be formatted using the format function of this camcorder. Any PHU-120R formatted with another device must be formatted again with this camcorder.

Checking the Remaining Time Available for Recording

In E-E Display/Recording mode, the remaining capacity (in minutes) of the PHU-120R connected via a card slot is displayed on the LCD monitor/viewfinder screen.
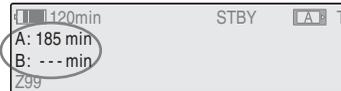
The available time for recording with the current video format (recording bit rate) is calculated according to the remaining space of the hard disk and displayed in time units of minutes.
The remaining capacity can also be checked in a meter format on the BATTERY/MEDIA status screen.

Restoring the PHU-120R

If an error occurs with data on the PHU-120R for some reason, the hard disk must be restored.
If a PHU-120R that needs to be restored is connected, a message that prompts you to execute restoration is displayed on the LCD monitor/viewfinder screen.

To restore the hard disk

Select "Execute" by turning the jog dial then push the dial.

Restoration begins.
During restoration, an in-progress message and status bar (%) are displayed, and the access lamp is lit in red.
When restoration is completed, a completion message is displayed for three seconds.

If restoration fails

- A PHU-120R on which an error occurred may become usable again through reformatting.
- In some cases, only parts of clips cannot be restored. Playback of the restored clips becomes possible again.

Using a Media Adaptor

Use of the optional MEAD-MS01 or MEAD-SD01 Media Adaptor permits you to insert a "Memory Stick" (with MEAD-MS01) or an SDHC card (with MEAD-SD01) to the SxS memory card slot of the camcorder and use it for recording and playback in the same way as with an SxS memory card.

Usable "Memory Stick"
"Memory Stick PRO-HG Duo" HXA series

Usable SDHC card
Class 10 SDHC card

For details on use of the MEAD-MS01/SD01 Media Adaptor, refer to the operating instructions of the adaptor.

> **Notes**
> - High-speed playback may not be properly achieved with a "Memory Stick" or an SDHC card.
> - Slow Motion recording by the Slow & Quick Motion recording function cannot be made with a "Memory Stick" or an SDHC card.

Formatting

When you use a "Memory Stick" or an SDHC card with this camcorder, formatting is required. A "Memory Stick" or an SDHC card to be used with this camcorder must be formatted using the format function of this camcorder.
It is also necessary to format a "Memory Stick" or an SDHC card for use if a caution message is displayed when you mount the "Memory Stick" or SDHC card.
For a "Memory Stick" or an SDHC card that was formatted with another system unsupported by this camcorder, the message "Unsupported File System" is displayed on the LCD monitor/viewfinder screen.
Format the "Memory Stick" or SDHC card as instructed below.

To execute formatting

Using "Format Media" of the OTHERS menu, specify "Media(A)" (slot A) or "Media(B)" (slot B) then select "Execute." On a confirmation message, select "Execute" again.

Formatting begins.
An in-progress message and status bar (%) are displayed, and the access lamp lights in red. When formatting is completed, a completion message is displayed for three seconds.

> **Note**
>
> In formatting, all data in a "Memory Stick" or an SDHC card including protected images, are erased and cannot be restored.

Connection between the camcorder and a PC
To use a "Memory Stick" or an SDHC card in which data have been recorded with an XDCAM EX-series product, insert it into the slot of the camcorder and connect between the PC and this camcorder using a USB cable.

To use a "Memory Stick" formatted with this camcorder with other devices having a "Memory Stick" slot
1. First make a backup copy of the data recorded in the "Memory Stick."
2. When the backup is done, format the "Memory Stick" with the device to be used.

For details on the formatting method, refer to the operating instructions of the device to be used.

To use an SDHC card formatted with this camcorder with other devices having an SDHC card slot
1. First make a backup copy of the data recorded in the SDHC card.
2. When the backup is done, format the SDHC card with the device to be used.

For details on the formatting method, refer to the operating instructions of the device to be used.

> - "Memory Stick" and ▭▭ MEMORY STICK are trademarks of Sony Corporation.
> - "Memory Stick PRO-HG Duo" and MEMORY STICK PRO-HG DUO are trademarks of Sony Corporation.

Operating via the REMOTE Connector

When the optional RM-B750 / RM-B150 Remote Control Unit or RCP-1000/1001 / RCP-1500/ 1501/1503 Remote Control Panel is connected, various settings of the camcorder can be performed from the remote control device. You can operate the menus of the camcorder and monitor the picture on the display of the RM-B750 or a video monitor connected via the MONITOR connector of the remote control device if you set the output of the camcorder to SD by selecting SD SDI, SD HDMI i & HDV or SD HDMI i & DVCAM under "SDI/HDMI/ i.Link I/O Select" of the VIDEO SET menu.

Connection

Using the remote cable (10 m) supplied with the remote control device, connect between the REMOTE connector of the camcorder and the camera connector of the remote control device. When you turn on the camcorder after the connection, the camcorder enters Remote Control mode.

Note

Use the RM-B750 of serial number 120000 or higher.

Adjusting the camcorder from the remote control device

Turn on the camcorder.
The Picture Profile function is activated, automatically selecting Picture Profile 10. From this status, you can control menu and recording operations from the remote control device.

For the functions that can be controlled from the remote control devices, see "Functions Operable via the REMOTE Connector" on page 8.

Notes

- Remote control operations cannot be made if USB connection to the camcorder is enabled.
- Do not connect or disconnect the remote control device when the camcorder is on.

- The following controls of the camcorder become inoperative when the remote control device is connected.
  —GAIN switch
  —WHITE BALANCE switch
  —SHUTTER switch
  —BARS/CAM button
  —AUTO WHT BAL button
- The ECS frequency value displayed on the Remote Control Unit may slightly differ from that on the camcorder.
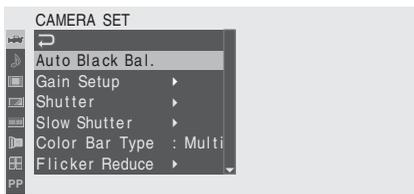
Releasing Remote Control mode

Turn off the camcorder and disconnect the remote control device.
The settings on the controls on the camcorder become valid.

Operating the Menus of the Camcorder

In Remote Control mode, PP (the icon for the Picture Profile menu) is displayed at the bottom with the Setup menu icons, enabling you select the Picture Profile menu from this screen.


```
CAMERA SET
     ⏎
  Auto Black Bal.
  Gain Setup        ▶
  Shutter           ▶
  Slow Shutter      ▶
  Color Bar Type  : Multi
  Flicker Reduce    ▶
PP
```

Note

The menu items that cannot be set in Remote Control mode are shaded and cannot be selected.

Operating the menu from the RM-B150

Set the camcorder to E-E Display mode then proceed as follows.

1 **Set the DISPLAY switch to MENU.**

The menu of the camcorder appears on the monitor screen connected via the MONITOR connector of the RM-B150.

2 **Select and set the menu items using the MENU SELECT knob and the CANCEL/ENTER switch.**

3 When the settings are completed, set the
DISPLAY switch to ON or OFF to exit
the menu.

*For details on operations of the RM-B150, refer to
the Operation Manual of the RM-B150.*

Operating the menu from the RM-B750

Set the camcorder to E-E Display mode then
proceed as follows.

1 Press and light the MONITOR button
then press the VF MENU button.

The menu of the camcorder appears on the
RM-B750 display and the monitor screen
connected via the MONITOR connector of
the RM-B750.

2 Select and set the menu items, using the
MENU SELECT knob, ENTER button,
and CANCEL button.

3 When the settings are completed, press
the VF MENU button to exit the menu.

*For details on operations of the RM-B750, refer to
the Operation Manual of the RM-B750.*

Functions Operable via the REMOTE Connector

When the camcorder is set to E-E Display mode, the following functions can be made using the controls, the switches, or the touch panel (RM-B750 or RCP-1500/1501/1503) on the remote control device, in addition to menu operations.

Function	Operation on the camcorder	Operation on the RM-B150	Operation on the RM-B750	Operation on the RCP-1000/1001, RCP-1500/1501/1503
Menu ON/OFF	MENU button	yes	yes	yes
Master gain selection	GAIN switch	yes		yes
Step gain selection			yes	
Color bar signal output ON/OFF	BARS/CAM button	yes	yes	yes
Shutter ON/OFF	SHUTTER switch + CAMERA SET menu → Shutter	yes	yes	yes
Shutter speed selection	CAMERA SET menu → Shutter	yes	yes	yes
ECS ON/OFF	SHUTTER switch + CAMERA SET menu → Shutter	yes	yes	yes
ECS frequency selection	CAMERA SET menu → Shutter	yes	yes	yes
Auto white balance	AUTO WHT BAL button	yes	yes	yes
Auto black balance	CAMERA SET menu → Auto Black Bal.	yes	yes	yes
White R/B level adjustments		yes	yes	yes
Black R/B level adjustments		yes	yes	yes
White balance memory selection	WHITE BALANCE switch	yes	yes	yes
Auto Tracing White ON/OFF	Assignable button (with "ATW" assigned)	yes	yes	yes
Recording start/stop	REC START/STOP button	yes	yes	
Rec Review	REC REVIEW button	yes	yes	
Rec Review stop	STOP button	yes	yes	
Playback start	PLAY/PAUSE button	yes	yes	
Playback stop	STOP button	yes	yes	
Fast-forward playback	F FWD button	yes	yes	
Fast-reverse playback	F REV button	yes	yes	
Call signal ON/OFF[1]			yes	yes

[1] When you press the CALL button on the RM-B750, the message "CALL" is displayed in the viewfinder of the camcorder.

Adjustments of the Picture Profiles

The Picture Profile menu of the camcorder can be operated from the remote control device in the same manner as on the camcorder. In addition, some items of the Picture Profile menu can also be adjusted by using the menus or controls of the remote control device.

For details on operations of the remote control device, refer to the Operation Manual of the device.

Notes

- The following menu and knob/switch operations on the remote control device are enabled when the menu of the camcorder is not displayed.
  The changes become valid and reflected on the Picture Profile menu.
- If the control knobs on the remote control device is set to Absolute mode, the corresponding items cannot be changed on the Picture Profile menu.

Picture Profile item		Operation on the RM-B150	Operation on the RM-B750	Operation on the RCP-1000/1001, RCP-1500/1501/1503
Matrix	Setting		yes	
	Level		yes	
	R-G, R-B, G-R, G-B, B-R, B-G		yes	
Multi Matrix	Setting		yes	
	Axis		yes	
	Hue		yes	
	Saturation		yes	
HD Detail SD Detail	Setting		yes	
	Level	yes	yes	yes
	Frequency		yes	
	Crispening		yes	
	H/V Ratio		yes	
	White Limiter		yes	
	Black Limiter		yes	
	Knee APT Level		yes	
Skin Tone Detail	Setting	yes	yes	yes
	Level	yes	yes	yes
	Area Indication		yes	
	Saturation		yes	
	Phase		yes	
	Width		yes	
Knee	Setting		yes	
	Auto Knee	yes	yes	yes
	Point	yes	yes	yes
	Slope	yes	yes	yes
	Knee SAT Level	yes	yes	yes
Gamma	Level	yes	yes	yes
	Select		yes	
Black		yes	yes	yes
Black Gamma			yes	
Low Key SAT			yes	

Using a Wi-Fi Adapter

Mounting an optional CBK-WA01 Wi-Fi Adapter on this camcorder allows a Wi-Fi connection between a computer and the camcorder.

For details on the CBK-WA01, refer to the Mounting Instructions and Operating Instructions supplied with the CBK-WA01.

Making a Wi-Fi connection between a computer and the camcorder enables you to do the following.
• Send planning metadata created on a computer to the camcorder, and set names of clips to shoot and shot marks for shooting.
• Send files including clips from the camcorder to a computer, and edit them at the shooting location.

Notes

• Check the firmware version of your camcorder to make sure that the camcorder supports the Wi-Fi adapter.

For details, contact your Sony dealer or your Sony service representative.

• In order to use the Wi-Fi connection feature, you must install a CBK-RGB01 RGB and S-LOG Output Option.
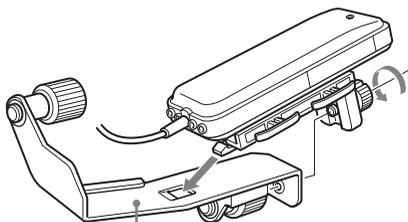
When installing the CBK-RGB01, refer to the Operating Instructions supplied with the CBK-RGB01.

Fixing the CBK-WA01

Note

Before attaching or removing the CBK-WA01, turn the power of the camcorder off.

1 **Hook the CBK-WA01 Wi-Fi Adapter to the hole of the mounting bracket for the CBK-WA01 (Part No. 4-410-322-01), and secure the adapter with the screw.**

Mounting bracket for the CBK-WA01

2 **Remove the caps from the two accessory mounting screw holes on the PMW-F3K/F3L then tighten the screws of the mounting bracket for the CBK-WA01.**

Tighten the screws securely to hold the bracket firmly in place.
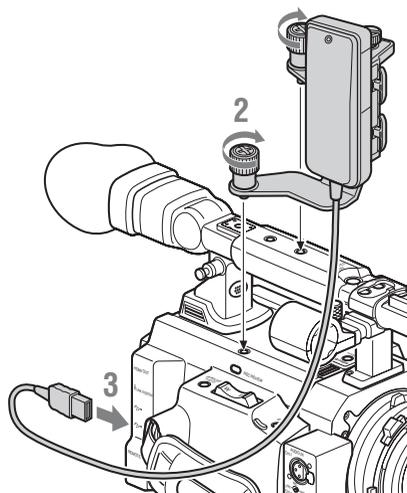
3 **Connect the USB cable of the CBK-WA01 to the Option connector (USB A connector) on the PMW-F3K/F3L.**

For the mounting bracket for the CBK-WA01, contact your Sony dealer or your Sony service representative.

Making a Wi-Fi Connection

Two types of Wi-Fi connections are available. In "ad hoc mode," you can make a peer-to-peer Wi-Fi connection between a computer and camcorder. In "infrastructure mode," you can make Wi-Fi connections between a computer and

multiple camcorders via a wireless LAN access point (building a LAN).

To make a network setting

Change settings under "Network" of the OTHERS menu, as required.

Item	Setting
DHCP	To specify whether to acquire the IP address automatically from a DHCP server. **Enable:** Acquire automatically. **Disable:** Do not acquire automatically (factory default setting).
IP Address	IP address [a] (factory default setting: 192.168.1.10)
Subnet Mask	Subnet mask (factory default setting: 255.255.255.0)
Default Gateway	Default gateway (factory default setting: 0.0.0.0)
User Name	User name for log-in (factory default setting: admin)
Password	Password [b] for log-in (factory default setting: pmw-f3)

a) The IP address determined by the DHCP server is displayed here.
b) The password is displayed as " * ".

When you have changed a setting

Select "Execute" under "Set" of the "Network" menu.
When a confirmation message appears, select "Execute" and press the jog dial.

To make a connection in ad hoc mode

1 Refer to "Settings on the Computer" under "Making a Wi-Fi Connection to Your Computer (Ad hoc Mode)" in the Operating Instructions supplied with the CBK-WA01 to make settings on the computer.

2 Start a connection on the computer.

3 Select "Wi-Fi" of the OTHERS menu.

4 Select "Wi-Fi" with the jog dial then select "Enable."
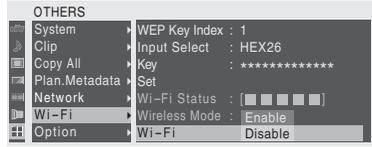
5 Select "Network Type" then select "Adhoc."

6 Select "Scan Networks" then select "Execute."

The camcorder starts scanning for a network connection.
When networks are detected, the NETWORK SCAN list appears.

7 Turn the jog dial to select a network and press the jog dial.

The OTHERS menu appears again.

8 Confirm that the settings of "Wi-Fi" conform to the network setting on the computer.

Item	Setting
SSID (network name)	Selected network name
Network Type (connection mode)	"Adhoc"
Ch (channel)	1
Authentication (network authentication)	Depending on the settings on the computer, "Open," "Shared," "WPA," or "WPA2"
Encryption (data encryption)	Depending on the settings on the computer, "Disable," "WEP," "TKIP," or" AES"

Item	Setting
WEP Key Index (key index)	1 when "Encryption" is set to "WEP"
Input Select (key input format)	Depending on the network key (or security key), "ASCII5," "ASCII13," "HEX10," or "HEX26" when "Encryption" is set to "WEP" or "ASCII8-63" or "HEX64" when "Encryption" is set to "TKIP" or "AES."

9 Select "Key" and set it to the network key (or security key) set on the computer and press the jog dial.

10 Select "Execute" under "Set" and press the jog dial.

The message "Wi-Fi Setting Executing…" appears and the camcorder starts connection. If the connection to the computer is complete, the message changes to "Wi-Fi Setting OK."
Black squares appear in the "Wi-Fi Status" column to show the connection status. (The number of squares shows the level of connection status.) In the "Wireless Mode" column, the IEEE802.11 standard of the established connection appears (802.11b, 802.11g or 802.11n).

Tip

It is also possible to make a connection by accessing a network connection started on the camcorder from the computer.

To terminate the Wi-Fi connection
Terminate the Wi-Fi connection on the computer.

To revert to the default settings (reset)
If you have trouble making a connection or you want to start over, you can reset your Wi-Fi connection settings to the default settings.
Select "Net Config Reset" under "Network" of the OTHERS menu and press the jog dial.
If the reset is executed, the message "Net Config Reset Done" appears.
The camcorder attempts to connect to the network using a MAC address as the SSID.

To make a connection in infrastructure mode

Setting up the wireless LAN access point
The following settings are required.
• Network ID (SSID)
• Encryption method (Encryption)
• Network key (Key)

For details on setting up the wireless LAN access point, refer to the manual supplied with the wireless LAN access point.

To find and connect to a wireless LAN from the camcorder
Perform the same procedure in "To make a connection in ad hoc mode" (page 11), excluding the following.
• Do not perform steps **1** and **2**.
• Set "Network Type" to "Infra" in step **5**.
• The "Wi-Fi" settings made in step **8** change as follows:

| Item	Setting
SSID (network name)	Selected network name
Network Type (connection mode)	"Infra"
Ch (channel)	Automatically set
Authentication (network authentication)	Depending on the settings for the access point, "Open," "Shared," "WPA," or "WPA2"
Encryption (data encryption)	Depending on the settings for the access point, "Disable," "WEP," "TKIP," or "AES"
WEP Key Index (key index)	1 when "Encryption" is set to "WEP"
Input Select (key input format)	Depending on the network key (or security key), "ASCII5," "ASCII13," "HEX10," or "HEX26" when "Encryption" is set to "WEP" or "ASCII8-63" or "HEX64" when "Encryption" is set to "TKIP" or "AES."

Using the Web Menu

You can operate the Web menu built into the camcorder from a computer when it is connected to the camcorder via a Wi-Fi connection.
Using the Web menu, you can check the information and settings for the camcorder and upload the planning metadata file.

Note

Accessing the Web menu during recording or playback is not possible. (Sending/receiving files via the Wi-Fi connection is also not possible.)

Example of Web menu
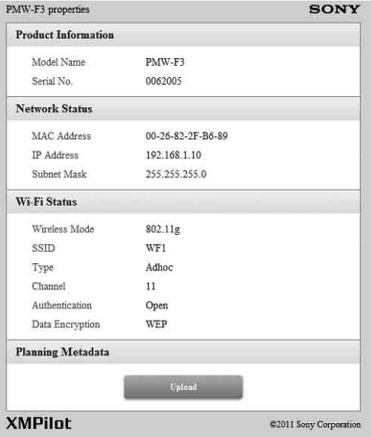
Product Information
• Model name
• Serial No.

Network
• MAC Address
• IP Address
• Subnet Mask

Wi-Fi Status
• Wireless Mode
• SSID
• Type
• Channel
• Authentication (network authentication)
• Data Encryption (data encryption)

Planning Metadata
Clicking "Upload" displays the Planning Metadata Upload screen which allows upload of a planning metadata file

Note

The configuration of items displayed in the Web menu varies depending on the browser you are using.

To display the Web menu

1 **Launch a web browser on the computer and navigate to "http://<camcorder's IP address> ("IP Address" setting under "Network" of the OTHERS menu)."**

Example (when the IP address is "192.168.1.10"): Type "http://192.168.1.10/" in the address bar.

If the connection is complete, a dialog appears asking you to enter the user name and password.

2 **Enter the user name and password then click OK.**

User name: admin
Password: pmw-f3 (lowercase model name)

To upload a planning metadata file

Note

Uploading a planning metadata file is not possible when Picture Cache Recording is set to On or the menu screen or thumbnail screen is displayed.

1 **Insert a medium such as an SxS memory card.**

2 **Click "Upload" in the Web menu.**

The Planning Metadata Upload screen appears.
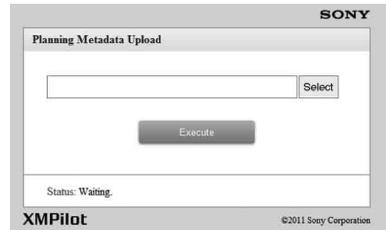
3 **Click "Select" to show the Choose File dialog.**

4 **Select the planning metadata file you wish to upload and then click "Open."**

The path of the selected file appears.

5 **Click "Execute."**

The planning metadata file is loaded into the camcorder's memory and stored in the medium.

"OK" appears in the Status field when the transfer is complete.

To upload a planning metadata file automatically

In the planning metadata file you want to load automatically, add a "load" property to the PlanningMetadata tag and set the value of the property to "true."

When you display the Web menu and insert a medium, the planning metadata file is immediately loaded into the camcorder's memory.

Example: <PlanningMetadata …$_{sp}$ load="true" $_{sp}$version="1.00">

For details on the planning metadata, refer to the Operating Instructions supplied with the camcorder.

Using Live Logging Function

The Live Logging function allows you to send and receive metadata between this camcorder and a computer.

The following operations are available on the computer.

• Add and edit metadata (titles, comments, essence marks, etc.)
• Transfer the added or edited metadata from the computer back to the camcorder to write to the original medium.

The Live Logging function is available any time during recording.

Using the 3D-Link Function

The 3D-Link function enables synchronization of the signal phase (genlock), timecodes, and start/stop of recording between two PMW-F3K/F3L units connected via an exclusive cable.

Specifying one unit as the main unit and the other as the sub unit, you can use the main unit for shooting the left-eye view and the sub unit for shooting the right-eye view for 3D images.

When the software version of the camcorder is 1.20 or higher, the 3D-Link function can be enabled by installing the separately available CBK-3DL01 3D-Link Option.

For details on the installation method, refer to the Operating Instructions supplied with the CBK-3DL01.
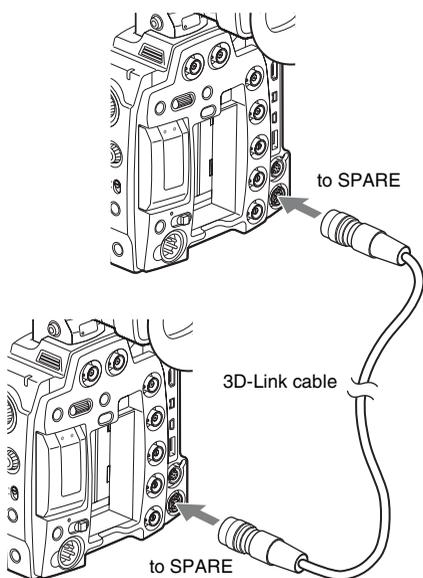
Preparations Before Recording

Connecting the camcorders

1 Connect two PMW-F3K/F3L units with an appropriate cable.

Connect the SPARE connector of one unit to that of the other unit, using the 3D-Link cable supplied with the CBK-3DL01.

Note

When connecting, turn the camcorders off.

to SPARE

3D-Link cable

to SPARE

2 Set two PMW-F3K/F3L units to the same recording video format, using "Format" of "System" of the OTHERS menu.

3 Set the output signals from two PMW-F3K/F3L units to the same format, using "SDI/HDMI/i.Link I/O Select" of the VIDEO SET menu.

Note

The 3D-Link function does not operate under the conditions listed below. Select other format settings.

- "Format" of "System" of the OTHERS menu is set to SP 1440/23.98P, DVCAM59.94i, DVCAM29.97P, DVCAM50i, or DVCAM25P.
- "Format" of "System" of the OTHERS menu is set to HQ 1920/23.98P or HQ 1440/23.98P and "23.98P Output" of the VIDEO SET menu is set to 59.94i (2-3 Pull Down).
- "Format" of "System" of the OTHERS menu is set to HQ 1920/23.98P or HQ 1440/23.98P and "SDI/HDMI/i.Link I/O Select" of the VIDEO SET menu is set to other than HD HDMI and HD SDI & HDMI.
- "SDI/HDMI/i.Link I/O Select" of the VIDEO SET menu is set to SD-HDMI P.

4 Specify one PMW-F3K/F3L unit as the main unit and the other as the sub unit, using "Mode" of "3D-Link" of the OTHERS menu.

Main(L): Main unit
Sub(R): Sub unit

When the settings are made, simultaneous processing for the main and sub unit begins. When the simultaneous processing is completed, the message "3D-Link Connecting" disappears and 3D-Link recording is enabled.

Note

When you change the "Mode" setting of "3D-Link" from "Off" to "Main(L)" or "Sub(R)," the message "3D-Link Connecting" appears. Recording cannot be started while this massage is displayed.

For clips recorded on the main unit, "L" is automatically added to the end of the clip names. For clips recorded on the sub unit, "R" is automatically added to the end the clip names. For 3D recording, be sure to use the main unit for left-eye view and the sub unit for right-eye view.

Copying the camera settings

When 3D-Link is active, various settings of the main unit can be copied to the sub unit. This is useful for aligning shooting conditions between the two units.

On the main unit, call "Send Main Data" of "3D-Link" of the OTHERS menu then select "Execute."

The setup menu and picture profile menu settings and the white balance value of the main unit are copied to the sub unit.
If a remote control unit is connected, the black R/B levels adjusted with the remote control unit are also copied.

3D-Link Recording

Recording start/stop operations are made on the main unit. Recording on the sub unit is started and stopped in synchronization with the main unit.

1 Press the REC START/STOP button on the main unit to start recording.

Recording on the sub unit automatically begins.

2 To stop recording, press the REC START/STOP button on the main unit again.

Recording on the sub unit also stops automatically.

Notes

- For 3D-Link recording, use SxS memory cards of the same type and same size for the main and sub units.
- If recording cannot be started on either of the main or sub unit, recording start operation is rejected.
- If recording stops on either of the main or sub unit, recording on the other unit also stops.

Rec Review

When 3D-Link is active, pressing the REC REVIEW button on the main unit after stopping recording starts Rec Review on the main and sub units in synchronization.

Linking functions

When 3D-Link is active, the following functions of the sub unit are always synchronized with or linked to those on the main unit. Different settings between units are not allowed.
—Time code and signal phase
—Interval Rec, Frame Rec, and S&Q Motion settings
—Electronic Shutter (including Slow Shutter) settings

Linking of the iris, focus, or/and zoom positions

If the same Sony power zoom lens (such as an optional SCD-Z18X140) is mounted on both the main unit and the sub unit, you can link the iris, focus, and/or zoom positions on the sub unit to those on the main unit when 3D-Link is active (with a camcorder with software version 1.30 or higher).

Constant linking

Set the following items under "3D-Link" of the OTHERS menu.

Item	Setting
Iris Position Sync	On: To link the iris position on the sub unit to that on the main unit. Off: To not link the iris position.
Focus Position Sync	On: To link the focus position on the sub unit to that on the main unit. Off: To not link the focus position.
Zoom Position Sync	On: To link the zoom position on the sub unit to that on the main unit. Off: To not link the zoom position.
Iris Offset	To adjust the lens iris on the sub unit to that on the main unit when the lenses on both units are linked to move. The adjustable range is from –99 to +99.

Temporary linking

When "Iris Sync," "Focus Sync, " or "Zoom Sync" has been assigned to an assignable button on the main unit, you can temporarily link to adjust the iris, focus, or zoom position on the sub unit to that on the main unit.

Function	Description
Iris Sync	To temporarily link the iris position on the sub unit to that on the main unit.
Focus Sync	To temporarily link the focus position on the sub unit to that on the main unit.
Zoom Sync	To temporarily link the zoom position on the sub unit to that on the main unit.

Notes

- If "Iris Position Sync," "Focus Position Sync," or "Zoom Position Sync" under "3D-Link" of the OTHERS menu is set to "On" for constant linking, pressing the assignable button to which the corresponding linking function is assigned does not activate temporary linking. Set the constant linking function to "Off" for activating the temporary linking.
- The linking function of this unit does not guarantee synchronizing in the same phase.

Compensating the sensitivity difference

When the CBK-3DL01 3D-Link Option is installed, you can finely adjust the sensitivity for each of the ND filter positions individually, using "ND Adjustment" of the OTHERS menu. It is

effective for compensating the sensitivity difference between the main and sub units.

Item	Setting
ND Clear	Adjust the sensitivity with the ND FILTER switch set to OFF (no ND filter) in the range of 0 to 999.
ND 1 (1/8)	Adjust the sensitivity with the ND FILTER switch set to 1 (1/8 ND filter) in the range of 0 to 999.
ND 2 (1/64)	Adjust the sensitivity with the ND FILTER switch set to 2 (1/64 ND filter) in the range of 0 to 999.

Restrictions in 3D-Link recording

There are the following restrictions in 3D-Link recording:

When 3D-Link is active
- Timecode of the sub unit cannot be set to a format different from that of the main unit. Signal input to the TC IN connector of the sub unit becomes invalid.
- Signal phase of the sub unit cannot be set to a state different from that of the main unit. Signal input to the GENLOCK IN connector of the sub unit becomes invalid.

When "Mode" of "3D-Link" of the OTHERS menu is set to "Main(L)" or "Sub(R)"
- Playback and thumbnail display are disabled.
- Image input via the i.LINK connector is disabled.
- Recording start/stop operations on a device connected to the i.LINK connector are not performed even if "Trigger Mode" of the OTHERS menu is set to "Both" or "External."
- The ATW (Auto-Tracing White balance), AGC (Automatic Gain Control), Auto Shutter, Auto Knee, and Flicker Reduction functions cannot be used.
- Store/load operations of all the menu setting values to/from an SxS memory card using "Camera Data" of the OTHERS menu are disabled.

When "Mode" of "3D-Link" of the OTHERS menu is set to "Sub(R)"
- The camcorder cannot be operated from the supplied IR Remote Commander.
- Planning metadata cannot be used.

Setting the S-Log Gamma and Monitor Image

When you install a CBK-RGB01 RGB and S-LOG Output Option on a camcorder whose software version is 1.1 or higher, you can use the S-Log gamma and MLUT (Monitor Look Up Table) features.

For details on the installation procedure, refer to the Operating Instructions supplied with the CBK-RGB01.

Using the S-Log Gamma

Sony-Log (S-Log in subsequent text) enables imaging in abundant layers from shadow detail to highlight by enhancing the dynamic range up to 800% to reduce blocked-out shadows and blown-out highlights.
In conventional video shooting, image creation is performed while observing the master monitor screen on the spot. However, in recording on negative film, the exposure is decided using a light meter, and color correction is performed in post-production for final image creation. The wide latitude of negative film makes it possible. While inheriting such workflow with negative film, S-Log achieves the "Digital-Negative" workflow optimal for digital processing.

S-Log EI (Exposure Index) mode
S-Log EI mode is available with a camcorder with software version 1.20 or higher.
This mode permits you to perform shooting by selecting the ISO sensitivity in the range of 800 to 3200, using a light meter.
As the master gain of the camera is fixed in this mode, increasing the sensitivity darkens images for output signal. In the same manner as in sensitizing recording with film cameras, the gain is increased to the appropriate level in post-production for images recorded dark. Although the HD-SDI Dual-Link or 3G-SDI output images become dark, recording with an appropriate level is enabled by applying an LUT to the HD SDI output, LCD panel indications, and images to be recorded on an SxS memory card, depending on the settings in EI mode.

Increasing the gain in post-production makes the S/N worse with high sensitivity, but the dynamic range for highlight areas can be enhanced. As this camcorder has superior S/N characteristics, image creation with low noise is possible even in high-sensitivity recording. While the S-Log gamma of the camcorder is designed for recording with ISO800 as the proper exposure, S-Log EI mode is quite effective when placing a higher priority on highlights.

To set to S-Log gamma

Select one of the following settings under "Dual-Link & Gamma Select" of the VIDEO SET menu:
—1.5G YPbPr422 & S-Log[1]
—1.5G RGB444 & S-Log
—3G YPbPr422 & S-Log[1]
—3G RGB444 & S-Log

[1] Available with a camcorder with software version 1.30 or higher.

Limitations of using S-Log gamma

• The S-Log gamma output is a special setting for shooting, which is different from the video gamma output. This setting is applied to all videos to be recorded on the SxS memory card inserted into the camcorder and those to be output from all output connectors, including Dual-Link output connectors.
• When S-Log gamma is selected, the following functions are set to off:
— TLCS (AGC, Auto Shutter), ATW, Offset White, Flicker Reduce, flare compensation, linear matrix, Multi Matrix, Detail, Skin Tone Detail, Knee.
• When S-Log gamma is selected, white balance is fixed to Preset White, and auto white-balance adjustment cannot be executed.
• When S-Log gamma is selected, the following items are fixed to a specified value:
—Preset White: 3200K (switching between 3200K and 5600K with the 5600K CC filter is possible)[2]
—Black (master black level): ±0
—Black Gamma: ±0
—Low Key SAT: ±0

[2] The "S-Log White ADJ (R Offset, B Offset)" items of the CAMERA SET menu permit you to adjust individual variability of preset white (Software version 1.20 or higher).

Setting the Monitor Image

As an image using S-Log gamma has low contrast, it may be unsuitable for image checking at the shooting location. MLUT (Monitor Look Up Table) converts the contrast of the image recorded on the camcorder and the output image except Dual-Link output (image output from the HD/SD SDI, HDMI OUT i.LINK, or VIDEO OUT connector) to produce an image suitable for checking. Use MLUT when you shoot images using S-Log gamma without any adjustments, on the assumption that the images will be output as Dual-Link output and recorded on an external device to be processed to post-production.

Notes

• If the setting of "S-Log LUT Select" of the VIDEO SET menu is other than "Off," MLUT is applied to images recorded on the camcorder.
• MLUT conversion does not affect Dual-link output.
• MLUT can be used only for the output with S-Log gamma.

The camcorder is provided with four preset LUTs. In addition to the preset LUTs, LUTs that the user has created independently can be loaded. A user LUT must be created with CvFileEditor[TM 1] and loaded into the camcorder via an SxS memory card.

For details, refer to "CvpFileEditor V4.20 User Guide."

You can download the latest version of CvpFileEditor from the"eCSite" software download site for the professional and business products of Sony Corporation.

Note

The camcorder supports user LUT data of RGB 10-bit format. LUT data of 12-bit format or having different RGB values cannot be managed by the camcorder.

[1] CvpFileEditor is a trademark of Sony Corporation.

To select MLUT

When selecting MLUT other than S-Log EI mode

Set "S-Log LUT" of the VIDEO SET menu to "On" then select the desired MLUT with "S-Log LUT Select."

"S-Log LUT Select" item	Setting
Off	MLUT not applied (original S-Log gamma is output)
P1: 709 (800%)	Gamma with dynamic range extended to 800% on basis of ITU-R709
P2: HG8009G40	Hypergamma with 800% dynamic range, 109% white limit, and 40% video output for the18% gray card
P3: HG8009G33	Hypergamma with 800% dynamic range, 109% white limit, and 33% video output for the18% gray card
P4: 709 (180%)	Gamma with 87% knee point and 180% dynamic range on basis of ITU-R709
U1: 709 (180%)	User LUTs
U2: 709 (180%)	
U3: 709 (180%)	
U4: 709 (180%)	
U5: 709 (180%)	

When selecting MLUT of S-Log EI mode
Set "S-Log LUT" of the VIDEO SET menu to "On" then select the desired MLUT with "S-Log EI Select" after setting "S-Log EI Mode" to "On."

"S-Log EI Select" item	Setting
800EI	ITU-R709-conversion LUT adjusted to the proper brightness depending on 800EI (equivalent to 0 dB gain)
1000EI	ITU-R709-conversion LUT adjusted to the proper brightness depending on 1000EI (equivalent to 2 dB gain)
1250EI	ITU-R709-conversion LUT adjusted to the proper brightness depending on 1250EI (equivalent to 4 dB gain)
1600EI	ITU-R709-conversion LUT adjusted to the proper brightness depending on 1600EI (equivalent to 6 dB gain)
2000EI	ITU-R709-conversion LUT adjusted to the proper brightness depending on 2000EI (equivalent to 8 dB gain)

"S-Log EI Select" item	Setting
2500EI	ITU-R709-conversion LUT adjusted to the proper brightness depending on 2500EI (equivalent to 10 dB gain)
3200EI	ITU-R709-conversion LUT adjusted to the proper brightness depending on 3200EI (equivalent to 12 dB gain)

To load user LUT data

To load user LUT data stored in an SxS memory card to the camcorder, select "Recall" under "LUT Memory" of the OTHERS menu.
User LUT data 1 to 5 recorded on the SxS memory card are loaded into the memory of the camcorder collectively.

To store user LUT data

To store user LUT data stored in the memory of the camcorder into an SxS memory card, select "Store" under "LUT Memory" of the OTHERS menu.
User LUT data 1 to 5 stored on the camcorder are loaded into the SxS memory card collectively.

Directory for storing user LUT data
The user LUT data are stored in the following directly:

Folder path: /SONY/PRO/CAMERA/HD_CAM/
File name: 00000001.lut, 00000002.lut, 00000003.lut, 00000004.lut, 00000005.lut
(The last number 1 to 5 corresponds to user LUT number U1 to U5.)

Formats and Limitations of Outputs

Video Formats and Output Formats

Output formats of the SDI OUT connector

The format of serial digital signals fed from the SDI OUT connector depends on the related Setup menu settings or the format of the clip to be played, as shown below.

No signal is fed out from the SDI OUT connector when "SDI/HDMI/i.LINK I/O Select" of the VIDEO SET menu is at any setting other than "HD SDI" and "SD SDI."

In E-E Display/Recording mode

"Country" setting of the OTHERS menu's "System": NTSC Area/NTSC(J) Area

OTHERS menu "System": "Format" setting	SDI OUT output format	
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting	
	HD SDI	SD SDI
HQ 1920/59.94i	1920×1080/59.94i	720×480/59.94i
HQ 1920/29.97P	1920×1080/29.97PsF	720×480/29.97PsF
HQ 1920/23.98P (23.98P Output: 59.94i(2-3PullDown))	1920×1080/59.94i [1]	720×480/59.94i [1]
HQ 1920/23.98P (23.98P Output: 23.98PsF)	1920×1080/23.98PsF	
HQ 1440/59.94i	1920×1080/59.94i	720×480/59.94i
HQ 1440/29.97P	1920×1080/29.97PsF	720×480/29.97PsF
HQ 1440/23.98P (23.98P Output: 59.94i(2-3PullDown))	1920×1080/59.94i [1]	720×480/59.94i [1]
HQ 1440/23.98P (23.98P Output: 23.98PsF)	1920×1080/23.98PsF	
SP 1440/59.94i	1920×1080/59.94i	720×480/59.94i
SP 1440/23.98P	1920×1080/59.94i [1]	720×480/59.94i [1]
HQ 1280/59.94P	1280×720/59.94P	720×480/59.94i [2]
HQ 1280/29.97P	1280×720/59.94P [3]	720×480/29.97PsF
HQ 1280/23.98P	1280×720/59.94P [4]	720×480/59.94i [1]
DVCAM59.94i SQ/EC	"SDI/HDMI/i.LINK I/O Select" invalid	720×480/59.94i
DVCAM29.97P SQ/EC		720×480/29.97PsF

[1] 59.94i provided through 2-3 pulldown of 23.98P
[2] 59.94i provided through conversion from 59.94P
[3] 59.94P provided by outputting each frame of 29.97P two times
[4] 59.94P provided by repeating each frame of 23.98P two or three times

"Country" setting of the OTHERS menu's "System": PAL Area

OTHERS menu "System": "Format" setting	SDI OUT output format	
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting	
	HD SDI	SD SDI
HQ 1920/50i	1920×1080/50i	720×576/50i
HQ 1920/25P	1920×1080/25PsF	720×576/25PsF
HQ 1440/50i	1920×1080/50i	720×576/50i
HQ 1440/25P	1920×1080/25PsF	720×576/25PsF
SP 1440/50i	1920×1080/50i	720×576/50i
HQ 1280/50P	1280×720/50P	720×576/50i [1]
HQ 1280/25P	1280×720/50P [2]	720×576/25PsF
DVCAM50i SQ/EC	"SDI/HDMI/i.LINK I/O Select" invalid	720×576/50i
DVCAM25P SQ/EC		720×576/25PsF

[1] 50i provided through conversion from 50P
[2] 50P provided by outputting each frame of 25P two times

In Thumbnail Screen mode

"Country" setting of the OTHERS menu's "System": NTSC Area/NTSC(J) Area

OTHERS menu "System": "Format" setting	SDI OUT output format	
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting	
	HD SDI	SD SDI
HQ 1920/59.94i	1920×1080/59.94i	720×480/59.94i
HQ 1920/29.97P		
HQ 1920/23.98P (23.98P Output: 59.94i(2-3PullDown))	1920×1080/59.94i [1]	
HQ 1920/23.98P (23.98P Output: 23.98PsF)	1920×1080/23.98PsF	
HQ 1440/59.94i	1920×1080/59.94i	
HQ 1440/29.97P		
HQ 1440/23.98P (23.98P Output: 59.94i(2-3PullDown))	1920×1080/59.94i [1]	
HQ 1440/23.98P (23.98P Output: 23.98PsF)	1920×1080/23.98PsF	
SP 1440/59.94i	1920×1080/59.94i	
SP 1440/23.98P		
HQ 1280/59.94P	1280×720/59.94P	
HQ 1280/29.97P		
HQ 1280/23.98P		
DVCAM59.94i SQ/EC	"SDI/HDMI/i.LINK I/O Select" invalid	
DVCAM29.97P SQ/EC		

[1] 59.94i provided through 2-3 pulldown of 23.98P

"Country" setting of the OTHERS menu's "System": PAL Area

OTHERS menu "System": "Format" setting	SDI OUT output format	
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting	
	HD SDI	SD SDI
HQ 1920/50i	1920×1080/50i	720×576/50i
HQ 1920/25P		720×576/25PsF
HQ 1440/50i		720×576/50i
HQ 1440/25P		720×576/25PsF
SP 1440/50i		720×576/50i
HQ 1280/50P	1280×720/50P	720×576/50i [1]
HQ 1280/25P		720×576/25PsF
DVCAM50i SQ/EC	"SDI/HDMI/i.LINK I/O Select" invalid	720×576/50i
DVCAM25P SQ/EC		720×576/25PsF

In Clip Playback mode

"Country" setting of the OTHERS menu's "System": NTSC Area/NTSC(J) Area

Video format of playback clip	SDI OUT output format	
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting	
	HD SDI	SD SDI
HQ 1920/59.94i	1920×1080/59.94i	720×480/59.94i
HQ 1920/29.97P	1920×1080/29.97PsF	720×480/29.97PsF
HQ 1920/23.98P (23.98P Output: 59.94i(2-3PullDown))	1920×1080/59.94i [1]	720×480/59.94i [1]
HQ 1920/23.98P (23.98P Output: 23.98PsF)	1920×1080/23.98PsF	
HQ 1440/59.94i	1920×1080/59.94i	720×480/59.94i
HQ 1440/29.97P	1920×1080/29.97PsF	720×480/29.97PsF
HQ 1440/23.98P (23.98P Output: 59.94i(2-3PullDown))	1920×1080/59.94i [1]	720×480/59.94i [1]
HQ 1440/23.98P (23.98P Output: 23.98PsF)	1920×1080/23.98PsF	
SP 1440/59.94i	1920×1080/59.94i	720×480/59.94i
SP 1440/23.98P	1920×1080/59.94i [1]	720×480/59.94i [1]
HQ 1280/59.94P	1280×720/59.94P	720×480/59.94i [2]
HQ 1280/29.97P	1280×720/59.94P [3]	720×480/29.97PsF
HQ 1280/23.98P	1280×720/59.94P [4]	720×480/59.94i [1]
DVCAM59.94i SQ/EC	"SDI/HDMI/i.LINK I/O Select" invalid	720×480/59.94i
DVCAM29.97P SQ/EC		720×480/29.97PsF

[1] 59.94i provided through 2-3 pulldown of 23.98P
[2] 59.94i provided through conversion from 59.94P
[3] 59.94P provided by outputting each frame of 29.97P two times
[4] 59.94P provided by repeating each frame of 23.98P two or three times

"Country" setting of the OTHERS menu's "System": PAL Area

Video format of playback clip	SDI OUT output format	
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting	
	HD SDI	SD SDI
HQ 1920/50i	1920×1080/50i	720×576/50i
HQ 1920/25P	1920×1080/25PsF	720×576/25PsF
HQ 1440/50i	1920×1080/50i	720×576/50i
HQ 1440/25P	1920×1080/25PsF	720×576/25PsF
SP 1440/50i	1920×1080/50i	720×576/50i
HQ 1280/50P	1280×720/50P	720×576/50i [1]
HQ 1280/25P	1280×720/50P [2]	720×576/25PsF
DVCAM50i SQ/EC	"SDI/HDMI/i.LINK I/O Select" invalid	720×576/50i
DVCAM25P SQ/EC		720×576/25PsF

[1] 50i provided through conversion from 50P
[2] 50P provided by outputting each frame of 25P two times

Output formats of the HDMI OUT connector

The format of serial digital signals fed from the HDMI OUT connector depends on the related Setup menu settings or the format of the clip to be played, as shown below.

No signal is fed out from the HDMI OUT connector when "SDI/HDMI/i.LINK I/O Select" of the VIDEO SET menu is set to "HD SDI" or "SD SDI."

In E-E Display/Recording mode

"Country" setting of the OTHERS menu's "System": NTSC Area/NTSC(J) Area

OTHERS menu "System": "Format" setting	HDMI OUT output format		
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting		
	HD HDMI HD HDMI & HDV	SD HDMI i SD HDMI i & HDV SD HDMI i & DVCAM	SD HDMI P SD HDMI P & HDV
HQ 1920/59.94i	1920×1080/59.94i	720×480/59.94i	720×480/59.94P
HQ 1920/29.97P	1920×1080/29.97PsF	720×480/29.97PsF	
HQ 1920/23.98P (23.98P Output: 59.94i(2-3PullDown))	1920×1080/59.94i [1]	720×480/59.94i [1]	
HQ 1920/23.98P (23.98P Output: 23.98PsF)	muting		
HQ 1440/59.94i	1920×1080/59.94i	720×480/59.94i	
HQ 1440/29.97P	1920×1080/29.97PsF	720×480/29.97PsF	
HQ 1440/23.98P (23.98P Output: 59.94i(2-3PullDown))	1920×1080/59.94i [1]	720×480/59.94i [1]	
HQ 1440/23.98P (23.98P Output: 23.98PsF)	muting		
SP 1440/59.94i	1920×1080/59.94i	720×480/59.94i	
SP 1440/23.98P	1920×1080/59.94i [1]	720×480/59.94i [1]	
HQ 1280/59.94P	1280×720/59.94P	720×480/59.94i [2]	
HQ 1280/29.97P	1280×720/59.94P [3]	720×480/29.97PsF	
HQ 1280/23.98P	1280×720/59.94P [4]	720×480/59.94i [1]	
DVCAM59.94i SQ/EC DVCAM29.97P SQ/EC	"SDI/HDMI/i.LINK I/O Select" invalid	720×480/59.94i 720×480/29.97PsF	"SDI/HDMI/i.LINK I/O Select" invalid

[1] 59.94i provided through 2-3 pulldown of 23.98P
[2] 59.94i provided through conversion from 59.94P
[3] 59.94P provided by outputting each frame of 29.97P two times
[4] 59.94P provided by repeating each frame of 23.98P two or three times

"Country" setting of the OTHERS menu's "System": PAL Area

OTHERS menu "System": "Format" setting	HDMI OUT output format		
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting		
	HD HDMI HD HDMI & HDV	SD HDMI i SD HDMI i & HDV SD HDMI i & DVCAM	SD HDMI P SD HDMI P & HDV
HQ 1920/50i	1920×1080/50i	720×576/50i	720×576/50P
HQ 1920/25P	1920×1080/25PsF	720×576/25PsF	
HQ 1440/50i	1920×1080/50i	720×576/50i	
HQ 1440/25P	1920×1080/25PsF	720×576/25PsF	
SP 1440/50i	1920×1080/50i	720×576/50i	
HQ 1280/50P	1280×720/50P	720×576/50i [1]	
HQ 1280/25P	1280×720/50P [2]	720×576/25PsF	
DVCAM50i SQ/EC	"SDI/HDMI/i.LINK I/O Select" invalid	720×576/50i	"SDI/HDMI/i.LINK I/O Select" invalid
DVCAM25P SQ/EC		720×576/25PsF	

[1] 50i provided through conversion from 50P
[2] 50P provided by outputting each frame of 25P two times

In Thumbnail Screen mode

"Country" setting of the OTHERS menu's "System": NTSC Area/NTSC(J) Area

OTHERS menu "System": "Format" setting	HDMI OUT output format		
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting		
	HD HDMI HD HDMI & HDV	SD HDMI i SD HDMI i & HDV SD HDMI i & DVCAM	SD HDMI P SD HDMI P & HDV
HQ 1920/59.94i	1920×1080/59.94i	720×480/59.94i	720×480/59.94P
HQ 1920/29.97P			
HQ 1920/23.98P (23.98P Output: 59.94i (2-3PullDown))	1920×1080/59.94i [1]		
HQ 1920/23.98P (23.98P Output: 23.98PsF)	muting		
HQ 1440/59.94i	1920×1080/59.94i		
HQ 1440/29.97P			
HQ 1440/23.98P (23.98P Output: 59.94i (2-3PullDown))	1920×1080/59.94i [1]		
HQ 1440/23.98P (23.98P Output: 23.98PsF)	muting		
SP 1440/59.94i	1920×1080/59.94i		
SP 1440/23.98P			
HQ 1280/59.94P	1280×720/59.94P		
HQ 1280/29.97P			
HQ 1280/23.98P			
DVCAM59.94i SQ/EC	"SDI/HDMI/i.LINK I/O Select" invalid	720×480/59.94i	"SDI/HDMI/i.LINK I/O Select" invalid
DVCAM29.97P SQ/EC			

[1] 59.94i provided through 2-3 pulldown of 23.98P

"Country" setting of the OTHERS menu's "System": PAL Area

OTHERS menu "System": "Format" setting	HDMI OUT output format		
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting		
	HD HDMI HD HDMI & HDV	SD HDMI i SD HDMI i & HDV SD HDMI i & DVCAM	SD HDMI P SD HDMI P & HDV
HQ 1920/50i	1920×1080/50i	720×576/50i	720×576/50P
HQ 1920/25P			
HQ 1440/50i			
HQ 1440/25P			
SP 1440/50i			
HQ 1280/50P	1280×720/50P		
HQ 1280/25P			
DVCAM50i SQ/EC	"SDI/HDMI/i.LINK I/O Select" invalid		"SDI/HDMI/i.LINK I/O Select" invalid
DVCAM25P SQ/EC			

In Clip Playback mode

"Country" setting of the OTHERS menu's "System": NTSC Area/NTSC(J) Area

Video format of playback clip	HDMI OUT output format		
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting		
	HD HDMI HD HDMI & HDV	SD HDMI i SD HDMI i & HDV SD HDMI i & DVCAM	SD HDMI P SD HDMI P & HDV
HQ 1920/59.94i	1920×1080/59.94i	720×480/59.94i	720×480/59.94P
HQ 1920/29.97P	1920×1080/29.97PsF	720×480/29.97PsF	
HQ 1920/23.98P (23.98P Output: 59.94i(2-3PullDown))	1920×1080/59.94i [1]	720×480/59.94i [1]	
HQ 1920/23.98P (23.98P Output: 23.98PsF)	muting		
HQ 1440/59.94i	1920×1080/59.94i	720×480/59.94i	
HQ 1440/29.97P	1920×1080/29.97PsF	720×480/29.97PsF	
HQ 1440/23.98P (23.98P Output: 59.94i(2-3PullDown))	1920×1080/59.94i [1]	720×480/59.94i [1]	
HQ 1440/23.98P (23.98P Output: 23.98PsF)	muting		
SP 1440/59.94i	1920×1080/59.94i	720×480/59.94i	
SP 1440/23.98P	1920×1080/59.94i [1]	720×480/59.94i [1]	
HQ 1280/59.94P	1280×720/59.94P	720×480/59.94i [2]	
HQ 1280/29.97P	1280×720/59.94P [3]	720×480/29.97PsF	
HQ 1280/23.98P	1280×720/59.94P [4]	720×480/59.94i [1]	
DVCAM59.94i SQ/EC	"SDI/HDMI/i.LINK I/O Select" invalid	720×480/59.94i	"SDI/HDMI/i.LINK I/O Select" invalid
DVCAM29.97P SQ/EC		720×480/29.97PsF	

[1] 59.94i provided through 2-3 pulldown of 23.98P
[2] 59.94i provided through conversion from 59.94P
[3] 59.94P provided by outputting each frame of 29.97P two times
[4] 59.94P provided by repeating each frame of 23.98P two or three times

"Country" setting of the OTHERS menu's "System": PAL Area

Video format of playback clip	HDMI OUT output format		
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting		
	HD HDMI HD HDMI & HDV	SD HDMI i SD HDMI i & HDV SD HDMI i & DVCAM	SD HDMI P SD HDMI P & HDV
HQ 1920/50i	1920×1080/50i	720×576/50i	720×576/50P
HQ 1920/25P	1920×1080/25PsF	720×576/25PsF	
HQ 1440/50i	1920×1080/50i	720×576/50i	
HQ 1440/25P	1920×1080/25PsF	720×576/25PsF	
SP 1440/50i	1920×1080/50i	720×576/50i	
HQ 1280/50P	1280×720/50P	720×576/50i [1]	
HQ 1280/25P	1280×720/50P [2]	720×576/25PsF	
DVCAM50i SQ/EC	"SDI/HDMI/i.LINK I/O Select" invalid	720×576/50i	"SDI/HDMI/i.LINK I/O Select" invalid
DVCAM25P SQ/EC		720×576/25PsF	

[1] 50i provided through conversion from 50P
[2] 50P provided by outputting each frame of 25P two times

Output formats of the VIDEO OUT connector

The VIDEO OUT connector outputs HD-Y signals (when the SDI OUT or HDMI OUT connector output is HD) or analog composite signals (when the SDI OUT or HDMI OUT connector output is SD) of the same format as that for the SDI OUT or HDMI OUT connector.

However, a simplified playback signal is output when playing a clip recorded with the system different from that set with "Country" under "System" of the OTHERS menu.

When playing a clip recorded with PAL system when "Country" of the OTHERS menu's "System" is "NTSC Area" or "NTSC(J) Area"
Some frame may be repeated when the frame rate is converted.

Video format of playback clip	VIDEO OUT output format	
	HD-Y	Analog composite
HQ 1920/50i	1920×1080/60i	720×576/59.94i
HQ 1920/25P	1920×1080/30PsF	720×576/29.97PsF
HQ 1440/50i	1920×1080/60i	720×576/59.94i
HQ 1440/25P	1920×1080/30PsF	720×576/29.97PsF
SP 1440/50i	1920×1080/60i	720×576/59.94i
HQ 1280/50P	1280×720/60P	
HQ 1280/25P		720×576/29.97PsF
DVCAM50i SQ/EC	Playback impossible	Playback impossible
DVCAM25P SQ/EC		

When playing a clip recorded with NTSC system when "Country" of the OTHERS menu's "System" is "PAL Area"

Some frame may be deleted when the frame rate is converted.

Video format of playback clip	VIDEO OUT output format	
	HD-Y	Analog composite
HQ 1920/59.94i	1920×1080/49.95i	720×576/50i
HQ 1920/29.97P	1920×1080/24.97PsF	720×576/25PsF
HQ 1920/23.98P		
HQ 1440/59.94i	1920×1080/49.95i	720×576/50i
HQ 1440/29.97P	1920×1080/24.97PsF	720×576/25PsF
HQ 1440/23.98P		
SP 1440/59.94i	1920×1080/49.95i	720×576/50i
SP 1440/23.98P	1920×1080/24.97PsF	720×576/25PsF
HQ 1280/59.94P	1280×720/49.95P	720×576/50i
HQ 1280/29.97P		720×576/25PsF
HQ 1280/23.98P		
DVCAM59.94i SQ/EC	Playback impossible	Playback impossible
DVCAM29.97P SQ/EC		

Output formats of the i.LINK (HDV/DV) connector

The format of serial digital signals fed from the i.LINK (HDV/DV) connector depends on the related Setup menu settings or the format of the clip to be played, as shown below.

No signal is fed out from the i.LINK (HDV/DV) connector when "SDI/HDMI/i.LINK I/O Select" of the VIDEO SET menu is set to "HD SDI," "SD SDI," "HD HDMI," "SD HDMIi," or "SD HDMI P."

In E-E Display/Recording mode

"Country" setting of the OTHERS menu's "System": NTSC Area/NTSC(J) Area

OTHERS menu "System": "Format" setting	i.LINK output format	
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting	
	HD HDMI & HDV, SD HDMI i & HDV HD HDMI P & HDV	SD HDMI i & DVCAM
HQ 1920/59.94i	No signal	720×480/59.94i
HQ 1920/29.97P		720×480/29.97PsF
HQ 1920/23.98P		No signal
HQ 1440/59.94i		720×480/59.94i
HQ 1440/29.97P		720×480/29.97PsF
HQ 1440/23.98P		No signal
SP 1440/59.94i	1440×1080/59.94i	720×480/59.94i
SP 1440/23.98P	1440×1080/59.94i [1]	720×480/59.94i [1]
HQ 1280/59.94P	No signal	720×480/59.94i [2]
HQ 1280/29.97P		720×480/29.97PsF
HQ 1280/23.98P		No signal
DVCAM59.94i SQ/EC		720×480/59.94i
DVCAM29.97P SQ/EC		720×480/29.97PsF

[1] 59.94i provided through 2-3 pulldown of 23.98P
[2] 59.94i provided through conversion from 59.94P

"Country" setting of the OTHERS menu's "System": PAL Area

OTHERS menu "System": "Format" setting	i.LINK output format	
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting	
	HD HDMI & HDV, SD HDMI i & HDV HD HDMI P & HDV	SD HDMI i & DVCAM
HQ 1920/50i	No signal	720 × 576/50i
HQ 1920/25P		720 × 576/25PsF
HQ 1440/50i		720 × 576/50i
HQ 1440/25P		720 × 576/25PsF
SP 1440/50i	1440 × 1080/50i	720 × 576/50i
HQ 1280/50P	No signal	720 × 576/50i [1]
HQ 1280/25P		720 × 576/25PsF
DVCAM50i SQ/EC		720 × 576/50i
DVCAM25P SQ/EC		720 × 576/25PsF

[1] 50i provided through conversion from 50P

In Thumbnail Screen mode

"Country" setting of the OTHERS menu's "System": NTSC Area/NTSC(J) Area

OTHERS menu "System": "Format" setting	i.LINK output format	
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting	
	HD HDMI & HDV, SD HDMI i & HDV HD HDMI P & HDV	SD HDMI i & DVCAM
HQ 1920/59.94i	No signal	720×480/59.94i
HQ 1920/29.97P		
HQ 1920/23.98P		No signal
HQ 1440/59.94i		720×480/59.94i
HQ 1440/29.97P		
HQ 1440/23.98P		No signal
SP 1440/59.94i	1440×1080/59.94i	720×480/59.94i
SP 1440/23.98P	1440×1080/59.94i	
HQ 1280/59.94P	No signal	
HQ 1280/29.97P		
HQ 1280/23.98P		No signal
DVCAM59.94i SQ/EC		720×480/59.94i
DVCAM29.97P SQ/EC		720×480/29.97PsF

"Country" setting of the OTHERS menu's "System": PAL Area

OTHERS menu "System": "Format" setting	i.LINK output format	
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting	
	HD HDMI & HDV, SD HDMI i & HDV HD HDMI P & HDV	SD HDMI i & DVCAM
HQ 1920/50i	No signal	720×576/50i
HQ 1920/25P		
HQ 1440/50i		
HQ 1440/25P		
SP 1440/50i	1440×1080/50i	
HQ 1280/50P	No signal	
HQ 1280/25P		
DVCAM50i SQ/EC		
DVCAM25P SQ/EC		

In Clip Playback mode

"Country" setting of the OTHERS menu's "System": NTSC Area/NTSC(J) Area

Video format of playback clip	i.LINK output format	
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting	
	HD HDMI & HDV, SD HDMI i & HDV HD HDMI P & HDV	SD HDMI i & DVCAM
HQ 1920/59.94i	No signal	720 × 480/59.94i
HQ 1920/29.97P		720 × 480/29.97PsF
HQ 1920/23.98P		No signal
HQ 1440/59.94i		720 × 480/59.94i
HQ 1440/29.97P		720 × 480/29.97PsF
HQ 1440/23.98P		No signal
SP 1440/59.94i	1440 × 1080/59.94i	720 × 480/59.94i
SP 1440/23.98P	1440 × 1080/59.94i 1)	720 × 480/59.94i 1)
HQ 1280/59.94P	No signal	720 × 480/59.94i 2)
HQ 1280/29.97P		720 × 480/29.97PsF
HQ 1280/23.98P		No signal
DVCAM59.94i SQ/EC		720 × 480/59.94i
DVCAM29.97P SQ/EC		720 × 480/29.97PsF

1)59.94i provided through 2-3 pulldown of 23.98P
2)59.94i provided through conversion from 59.94P

"Country" setting of the OTHERS menu's "System": PAL Area

Video format of playback clip	i.LINK output format	
	VIDEO SET menu "SDI/HDMI/i.LINK I/O Select" setting	
	HD HDMI & HDV, SD HDMI i & HDV HD HDMI P & HDV	SD HDMI i & DVCAM
HQ 1920/50i	No signal	720 × 576/50i
HQ 1920/25P		720 × 576/25PsF
HQ 1440/50i		720 × 576/50i
HQ 1440/25P		720 × 576/25PsF
SP 1440/50i	1440 × 1080/50i	720 × 576/50i
HQ 1280/50P	No signal	720 × 576/50i 1)
HQ 1280/25P		720 × 576/25PsF
DVCAM50i SQ/EC		720 × 576/50i
DVCAM25P SQ/EC		720 × 576/25PsF

1)50i provided through conversion from 50P

Output formats of the HD SDI A/B connectors

The format of signals fed from the HD SDI A/B connectors depends on the setting of "Dual-Link & Gamma Select" of the VIDEO SET menu and the setting of "System" of the OTHERS menu, as shown below.

When "Dual-Link & Gamma Select" is set to "1.5G YPbPr422 & Video" or "1.5G YPbPr422 & S-Log"

blank: no signal

OTHERS menu "System"		HD SDI output format	
Country	Format	A connector	B connector
NTSC Area/ NTSC(J) Area	HQ 1920/59.94i [1]	1920 × 1080/59.94P@1.5G	1920 × 1080/59.94P@1.5G
	HQ 1920/29.97P	1920 × 1080/29.97PsF@1.5G	
	HQ 1920/23.98P	1920 × 1080/23.98PsF@1.5G	
	HQ 1440/59.94i	1920 × 1080/59.94P@1.5G	1920 × 1080/59.94P@1.5G
	HQ 1440/29.97P	1920 × 1080/29.97PsF@1.5G	
	HQ 1440/23.98P	1920 × 1080/23.98PsF@1.5G	
	SP 1440/59.94i	1920 × 1080/59.94P@1.5G	1920 × 1080/59.94P@1.5G
	SP 1440/23.98P		
	HQ 1280/59.94P	1920 × 1080/59.94P@1.5G	1920 × 1080/59.94P@1.5G
	HQ 1280/29.97P	1920 × 1080/29.97PsF@1.5G	
	HQ 1280/23.98P	1920 × 1080/23.98PsF@1.5G	
	DVCAM/59.94i	1920 × 1080/59.94P@1.5G	1920 × 1080/59.94P@1.5G
	DVCAM/29.97P	1920 × 1080/29.97PsF@1.5G × 1	
PAL Area	HQ 1920/50i [1]	1920 × 1080/50P@1.5G	1920 × 1080/50P@1.5G
	HQ 1920/25P	1920 × 1080/25PsF@1.5G	
	HQ 1440/50i	1920 × 1080/50P@1.5G	1920 × 1080/50P@1.5G
	HQ 1440/25P	1920 × 1080/25PsF@1.5G	
	SP 1440/50i	1920 × 1080/50P@1.5G	1920 × 1080/50P@1.5G
	HQ 1280/50P	1920 × 1080/50P@1.5G	1920 × 1080/50P@1.5G
	HQ 1280/25P	1920 × 1080/25PsF@1.5G	
	DVCAM/50i	1920 × 1080/50P@1.5G	1920 × 1080/50P@1.5G
	DVCAM/25P	1920 × 1080/25PsF@1.5G	

[1] Can be output in the default status, without the CBK-RGB01 RGB and S-LOG Output Option.

When "Dual-Link & Gamma Select" is set to "1.5G RGB444 & Video" or "1.5G RGB444 & S-Log"

blank: no signal

OTHERS menu "System"		HD SDI output format	
Country	**Format**	A connector	B connector
NTSC Area/ NTSC(J) Area	HQ 1920/59.94i		
	HQ 1920/29.97P	1920 × 1080/29.97PsF@1.5G	1920 × 1080/29.97PsF@1.5G
	HQ 1920/23.98P	1920 × 1080/23.98PsF@1.5G	1920 × 1080/23.98PsF@1.5G
	HQ 1440/59.94i		
	HQ 1440/29.97P	1920 × 1080/29.97PsF@1.5G	1920 × 1080/29.97PsF@1.5G
	HQ 1440/23.98P	1920 × 1080/23.98PsF@1.5G	1920 × 1080/23.98PsF@1.5G
	SP 1440/59.94i		
	SP 1440/23.98P		
	HQ 1280/59.94P		
	HQ 1280/29.97P	1920 × 1080/29.97PsF@1.5G	1920 × 1080/29.97PsF@1.5G
	HQ 1280/23.98P	1920 × 1080/23.98PsF@1.5G	1920 × 1080/23.98PsF@1.5G
	DVCAM/59.94i		
	DVCAM/29.97P	1920 × 1080/29.97PsF@1.5G	1920 × 1080/29.97PsF@1.5G
PAL Area	HQ 1920/50i		
	HQ 1920/25P	1920 × 1080/25PsF@1.5G	1920 × 1080/25PsF@1.5G
	HQ 1440/50i		
	HQ 1440/25P	1920 × 1080/25PsF@1.5G	1920 × 1080/25PsF@1.5G
	SP 1440/50i		
	HQ 1280/50P		
	HQ 1280/25P	1920 × 1080/25PsF@1.5G	1920 × 1080/25PsF@1.5G
	DVCAM/50i		
	DVCAM/25P	1920 × 1080/25PsF@1.5G	1920 × 1080/25PsF@1.5G

When "Dual-Link & Gamma Select" is set to "3G YPbPr422 & Video" or "3G YPbPr422 & S-Log"

blank: no signal

OTHERS menu "System"		HD SDI output format	
Country	Format	A connector	B connector
NTSC Area/ NTSC(J) Area	HQ 1920/59.94i	1920 × 1080/59.94P @3G	
	HQ 1920/29.97P		
	HQ 1920/23.98P		
	HQ 1440/59.94i	1920 × 1080/59.94P@3G	
	HQ 1440/29.97P		
	HQ 1440/23.98P		
	SP 1440/59.94i	1920 × 1080/59.94P@3G	
	SP 1440/23.98P		
NTSC Area/ NTSC(J) Area	HQ 1280/59.94P	1920 × 1080/59.94P@3G	
	HQ 1280/29.97P		
	HQ 1280/23.98P		
	DVCAM/59.94i	1920 × 1080/59.94P@3G	
	DVCAM/29.97P		
PAL Area	HQ 1920/50i	1920 × 1080/50P@3G	
	HQ 1920/25P		
	HQ 1440/50i	1920 × 1080/50P@3G	
	HQ 1440/25P		
	SP 1440/50i	1920 × 1080/50P@3G	
	HQ 1280/50P	1920 × 1080/50P@3G	
	HQ 1280/25P		
	DVCAM/50i	1920 × 1080/50P@3G	
	DVCAM/25P		

When "Dual-Link & Gamma Select" is set to "3G RGB444 & Video" or "3G RGB444 & S-Log"

blank: no signal

OTHERS menu "System"		HD SDI output format	
Country	**Format**	A connector	B connector
NTSC Area/ NTSC(J) Area	HQ 1920/59.94i		
	HQ 1920/29.97P	1920 × 1080/29.97PsF@3G	
	HQ 1920/23.98P	1920 × 1080/23.98PsF@3G	
	HQ 1440/59.94i		
	HQ 1440/29.97P	1920 × 1080/29.97PsF@3G	
	HQ 1440/23.98P	1920 × 1080/23.98PsF@3G	
	SP 1440/59.94i		
	SP 1440/23.98P		
	HQ 1280/59.94P		
	HQ 1280/29.97P	1920 × 1080/29.97PsF@3G	
	HQ 1280/23.98P	1920 × 1080/23.98PsF@3G	
	DVCAM/59.94i		
	DVCAM/29.97P	1920 × 1080/29.97PsF@3G	
PAL Area	HQ 1920/50i		
	HQ 1920/25P	1920 × 1080/25PsF@3G	
	HQ 1440/50i		
	HQ 1440/25P	1920 × 1080/25PsF@3G	
	SP 1440/50i		
	HQ 1280/50P		
	HQ 1280/25P	1920 × 1080/25PsF@3G	
	DVCAM/50i		
	DVCAM/25P	1920 × 1080/25PsF@3G	

Limitations of Outputs

The outputs from the camcorder are limited by the menu settings as follows:

blank: no signal

Menu setting			Output				Input
System		SDI/HDMI/ i.LINK I/O Select	SDI OUT	HDMI OUT	VIDEO OUT	i.LINK	i.LINK
HD/SD	Format						
HD	HQ	HD SDI [1]	HD		HD-Y		
		SD SDI [1]	SD		Composite		
		HD SDI & HDMI [2]	HD	HD	HD-Y		
		SD SDI & HDMI i [2]	SD	SD i	Composite		
		HD HDMI		HD	HD-Y		
		SD HDMI P		SD P			
		SD HDMI i		SD i	Composite		
		SD HDMI i & DVCAM		SD i	Composite	DVCAM	DVCAM (display only)
	SP	HD SDI [1]	HD		HD-Y		
		SD SDI [1]	SD		Composite		
		HD SDI & HDMI [2]	HD	HD	HD-Y		
		SD SDI & HDMI i [2]	SD	SD i	Composite		
		HD HDMI & HDV		HD	HD-Y		
		SD HDMI P & HDV		SD P			
		SD HDMI i & HDV		SD i	Composite		
		SD HDMI i & DVCAM		SD i	Composite	SD	
SD	DVCAM	SD SDI [1]	SD		Composite		
		SD SDI & HDMI i	SD	SD i	Composite		
		SD HDMI i & DVCAM		SD i	Composite	DVCAM	DVCAM (display only)

[1] Available when "Dual-Link & Gamma Select" is set to any setting other than "Off."
[2] Available when "Dual-Link & Gamma Select" is set to "Off."