

Panasonic
ideas for life

P2HD

AG-3DP1

Integrated Twin-Lens 3D Camera Recorder



3D

PROFESSIONAL

AVC INTRA

Now, 3D IMAGES FROM THE FIELD

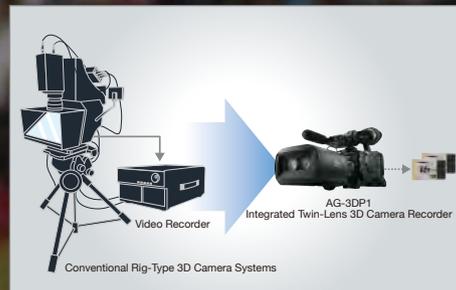
A high-powered twin-lens zoom lens system, high-sensitivity sensors, and high-quality AVC-Intra codec in this integrated camera recorder enable broadcast-level 3D image acquisition. It also features new 3D Assist functions and multi-camera synchronization for versatile broadcast use and image production.



The AG-3DP1 is a P2HD Series integrated twin-lens 3D camera recorder. This high-end model takes the user-friendliness of the AG-3DA1 integrated twin-lens 3D camera recorder — which brought an innovative solution to 3D shooting and production — to an even higher level. The AG-3DP1 comes with a newly developed 17x twin-lens zoom lens system that features an expanded range for both wide-angle and telephoto to fit diverse shooting situations. The combination of high-sensitivity, high-resolution 2.2-megapixel 1/3-type 3MOS sensors and AVC-Intra codec achieves high-quality 3D HD recording with 1920 x 1080 full-pixel resolution and 10 bit 4:2:2 full sampling. Supporting multi-camera synchronization and Panasonic's Camera Studio System, as well as a variable frame rate (VFR) function*, the AG-3DP1 meets highly sophisticated needs. Operation is easier, too, with new 3D Assist functions that add reliability and convenience to Z-axis setting (for 3D leaping effects and depth). From sports event broadcasting to movie production, the AG-3DP1 efficiently serves as a main camera, to replace the conventional rig-type cameras. This integrated twin-lens camera recorder is highly mobile and easy to handle.

*The AG-3DP1's variable frame rate function supports only the 720p mode.

3D PROFESSIONAL



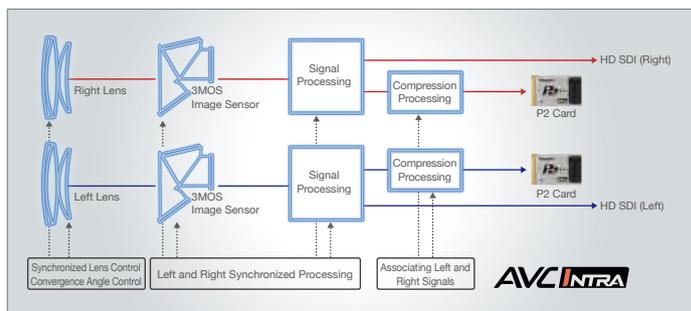
Integrated twin-lens 3D camera recorder: Eliminates the installation, wiring and adjustment that are required for rig-type 3D cameras. Places no restrictions on the installation location or camera angle, providing 3D shooting with the same easy operation and mobility as conventional 2D camera recorders.



New 3D Assist functions: Three display modes ensure reliable and convenient 3D shooting — a Z-axis waveform display (see bottom photo), warning displays for negative or positive parallax and a convergence plane display.

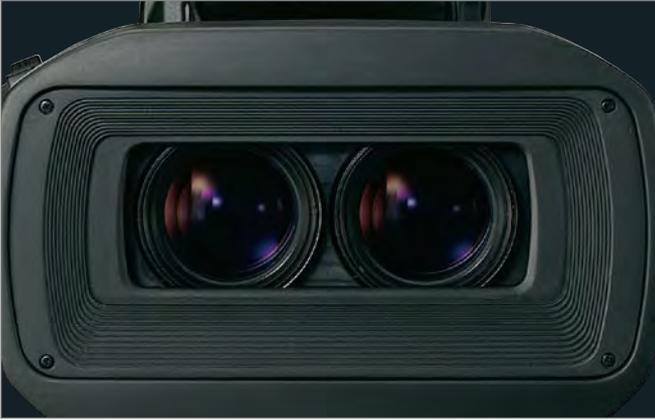


Multi-camera versatility: Genlock input and TC input/output terminals allow multi-camera synchronization. Panasonic's Camera Studio System is also supported for live relays and other broadcast applications.



Schematic of the AG-3DP1: The left-channel and right-channel optical sections, image sensors, signal processing circuits and recording section are precisely synchronized. The AG-3DP1 outputs left-eye and right-eye full-HD image signals as simultaneous HD SDI video and also records to two P2 cards in the AVC-Intra format.

HIGH-POWERED 17x HD TWIN-LENS SYSTEM COVERS A WIDE SHOOTING RANGE



Newly Developed Twin-Lens System with Powerful 17x Zooming

The HD twin-lens system was developed exclusively for the AG-3DP1. Its wide-angle and 17x telephoto settings meet a host of applications in sports, TV series, and movie production. Because the HD twin-lens system is assembled with high precision, it requires no pre-shooting adjustment of the optical axis or angle of view. Focus, zoom and iris adjustments are synchronized accurately for the left and right lenses. The AG-3DP1 also supports remote control (focus, zoom, iris, convergence, and recording start/stop). It also boasts low chroma aberration and high resolution, and delivers superb color reproduction, detailed nuances and crisp 3D images even in dark scenes – with minimal flare and ghosting.

Zoom, Focus, Iris and Convergence

In addition to a zoom ring, focus ring and iris ring that approach the manual control levels of interchangeable lenses, the AG-3DP1 has an isolated convergence dial. By changing the convergence angle of the twin lenses inside the optical unit, the convergence point (the reference plane for 3D images) can be adjusted forward or backward to control leaping effects and depth.



3D Mode Selection for Maximum Zooming Effect: Near/Normal/Extra

Three modes maximize the twin-lens zooming capability. Setting the selector switch to Near, Normal or Extra optimizes the lens convergence angle range for each shooting distance. This quick and easy setting gives you effective 3D shooting over diverse angles of view.

3D Mode Selection

3D Mode	Convergence Point Adjustment Range*	Zoom Power
NEAR	Approx. 1.1 m to 3.4 m	Max. approx. 7x
NORMAL	Approx. 1.7 m to ∞	Max. approx. 7x
EXTRA	Approx. 1.7 m to ∞	Max. approx. 17x

*These ranges are approximate distances from the front of the camera to the subject.

NEW 3D ASSIST FUNCTIONS FOR RELIABLE AND CONVENIENT 3D SHOOTING

3D Assist Display Functions

Various information can be displayed on the LCD monitor and viewfinder to make 3D shooting more reliable and convenient.

Overlay Warning Displays

- **ALERT:** A red block is overlaid on areas of the image that show negative parallax, and a yellow block is overlaid on areas that show positive parallax. (Safe ranges can be selected from a menu.)
- **CONV. (Reference Plane Display):** A green edge is displayed around areas that are within the reference plane (convergence plane).

Z-WFM (Waveform) Display

This function displays the forward/backward relationship between the subject and the convergence plane as a waveform. It provides a general view of the positioning for the overall composition. The display range can be selected in two levels from the menu. Waveforms for parts with excessive leaping effects or excessive depth can also be displayed with warning colors.

Left/Right/Mix/Side By Side Monitor Image Selection

The image displayed on the LCD monitor or viewfinder can be selected from among left lens (with no mode display), right lens (R-IMAGE), left/right mix (MIX) and Side By Side (SIDE) modes.

3D Assist Display Examples

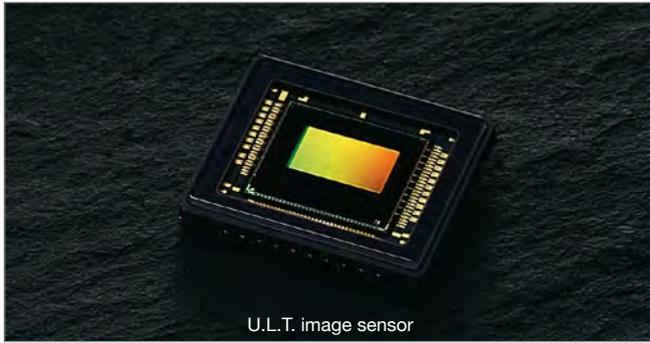
Excessive leaping effects:
A red block is overlaid on parts with excessive forward leaping effects.

Z WFM (waveform):
The white line shows the convergence plane, the bottom part shows the forward area, and the top part shows depth. Warnings are also displayed here with red and yellow waveforms.



Reference plane check:
A green edge is displayed around image areas that are within the reference plane (the convergence plane).

Excessive depth: A yellow block is overlaid on parts of the subject with excessive depth.



U.L.T. image sensor

High-Sensitivity, High-Quality, Dual 3MOS U.L.T. Image Sensors

Two pairs of 2.2-megapixel 1/3-type 3MOS sensors are mounted left and right. Each one employs full-pixel HD resolution to produce precisely synchronized FULL-HD 3D images. Ultra Luminance Technology (U.L.T.) enables these image sensors to attain high-sensitivity, high-quality images.

20 bit DSP

The AG-3DP1 incorporates a high-performance 20 bit Digital Signal Processor that handles image rendering processes such as gamma and various detail enhancement functions with exceptional precision.



DSP Processor

6-Mode Gamma for Richer Gradation

Drawing on technologies developed for the VariCam, Panasonic has equipped the AG-3DP1 with advanced gamma functions that address six different shooting scenarios, including two Cine-Like Gammas.



Image with HD NORM mode

Image with CINE-LIKE GAMMA

AG-3DP1 Gamma Modes

HD NORM:	Suitable for standard HD recording
LOW:	Gently rising gamma curve to low brightness areas for a balanced look
HIGH:	Expands the tone of dark parts and makes a brighter image. The contrast softens.
B.PRESS:	Makes the contrast sharper than LOW
CINE-LIKE D:	The Cine-Like mode shifted to prioritize dynamic range
CINE-LIKE V:	The Cine-Like mode shifted to prioritize contrast

SHOOTING ASSIST FUNCTIONS INSTANTLY RESPOND TO SHOOTING SITUATIONS

Focus Assist Functions

Press the Focus Assist button and the center section of the screen expands in size, making it easier to determine if the focus is correct. Also, the Focus Bar that visually indicates the focus level can be displayed on the screen. *The photo is simulated.



Focus Assist ON

Focus Bar

3-Position Gain Selector

There is a 3-position gain selector, with L, M and H settings. To each setting you can assign a gain value from 0, +3, +6, +9 and +12 dB.

User Buttons

Three user buttons can each be allocated with one of the following functions for one-touch operation: PUSH AF, Y-GET, SHOT MARK, REC CHECK, R.CONV, 3D A.Z WFM, 3D A.ALERT, or 3D A.CONV.

Simplified Waveform and Vectorscope Display

The AG-3DP1 has Waveform and Vectorscope Display functions for the captured video signal on the LCD monitor.



Waveform



Vectorscope

Scene File/User File

You can set the Scene File for setting of shooting conditions. Six files are provided, and you can change any of the six file names and their settings as desired. One set can be stored internally in the AG-3DP1, and four sets on an SD Memory Card. One User file with camera setting values can also be stored internally, and four files on an SD Memory Card.

Other Camera Functions

- 4-position (off, 1/4 ND, 1/16 ND, 1/64 ND) optical neutral density filter wheel.
- Slow, Synchro and High Speed Shutter.
- Matrix setting including a Cine-Like mode.
- Adjustable V detail level, detail coring.
- Chroma level, chroma phase, color temp and master pedestal.
- Knee point settings: Low, Mid and High.
- Three values (A/B/Preset) of white balance selector.
- Mode check: Displays a list of the camera settings.
- Zebra: Select any two levels from among 50% to 109%, in 1% step.
- Y-GET: Measures brightness at the screen center and displays precise numerical data.

AVC-INTRA CODEC FOR 3D ACQUISITION WITH 1920 x 1080*, 10 BIT, 4:2:2 QUALITY

Full-Pixel, Full-Sample AVC-Intra Recording

Featuring a high compression ratio based on the new MPEG-4 AVC/H.264 moving picture compression technology, this advanced system maintains intra-frame compression to provide both high image quality and excellent editing performance. It offers recording and playback of both AVC-Intra 100 and AVC-Intra 50 modes.

- **AVC-Intra 100:** 1920 x 1080*, 10 bit, 4:2:2

High-quality images with full-pixel HD and full sampling are recorded at the same bit rate as DVCPRO HD, bringing agile mobility to high-end production.

- **AVC-Intra 50:** 1440 x 1080*, 10 bit, 4:2:0

Image quality is the same level as DVCPRO HD, but with the SD (DVCPRO 50) bit rate. You get twice the recording time of DVCPRO HD, and about half the required data transmission time.

*These figures are for 1080i/p mode. The AG-3DP1 also supports 720p mode.



Multi-Format Recording with Native 24p/25p Support

- **Native recording modes:** In addition to 1080/59.94i with the AVC-Intra codec, native recording is supported at 1080/23.98pN or 1080/29.97pN and 1080/25pN or 720/25pN. 720p makes it possible to extend recording time by 2 to 2.5 times in comparison with pull-down recording.

*Camera image output and playback image output are pulled-down 59.94 (50) frames.

- **59.94 Hz/50 Hz selector:** Supports worldwide HD production.

AG-3DP1 Recording Format & Recording Time

HD Format	Codec & Recording Time (with 64 GB P2 Cards)	
	AVC-Intra 100	AVC-Intra 50
1080/59.94i	Approx. 60 min.	Approx. 120 min.
1080/29.97pN (Native)*	Approx. 60 min.	Approx. 120 min.
1080/23.98pN (Native)*	Approx. 80 min.	Approx. 160 min.
1080/50i	Approx. 60 min.	Approx. 120 min.
1080/25pN (Native)*	Approx. 60 min.	Approx. 120 min.
720/59.94p	Approx. 60 min.	Approx. 120 min.
720/50p	Approx. 60 min.	Approx. 120 min.
720/29.97pN (Native)*	Approx. 120 min.	Approx. 240 min.
720/25pN (Native)*	Approx. 120 min.	Approx. 240 min.
720/23.98pN (Native)*	Approx. 150 min.	Approx. 300 min.

*Native modes record only the effective frames.

High-Quality, 16 bit, 4-Channel Digital Audio

The AG-3DP1 can record high-quality, 16 bit digital audio on all four channels. You can freely select the audio source for each channel, choosing from FRONT (mic), REAR (mic/line) and WL (wireless). Sound volume dials let you set the input level for channels 1 and 2, and AGC (ON/OFF) is provided for channels 3 and 4.

HIGHLY RELIABLE, EASY-TO-USE P2 CARD ENABLES DOUBLE-SLOT IMAGE ACQUISITION AND 2D RECORDING



3D/2D Acquisition onto Double P2 Card Slots

Two P2 card slots allow 3D/2D image acquisition.

- **3D recording mode:** Left and right channel images with full-pixel HD, full-sampling quality are each synchronized and recorded onto two P2 cards.
- **2D recording mode:** 2D LL left-eye images are recorded simultaneously onto both left and right P2 cards. This expands the double-slot application possibilities for recording images without left-eye/right-eye visual disparity, and for backup use.

P2 Card Recording Offers High Reliability and a Proven Record for Broadcasting

The P2 card was originally developed for broadcast use. In addition to its large 64 GB* capacity, it strongly resists impacts, vibration and temperature changes, and withstands repeated recording and initialization cycles for extended recording use. The card connector section is designed specifically for professional use, resulting in extremely high durability for insertion and removal. The P2 card and P2HD Series are widely used in broadcast and movie production industries and have a proven track record for reliability, durability and easy operation.

*Total card capacity includes space for data management such as system data; therefore, the actual usable area is less than the capacity indicated on the card.



Versatile MXF File-Based Recording

File-based recording onto memory cards enables high-speed starts, recording starts with no need for cueing, and protection against accidental data overwriting. The recorded data is organized into MXF files. The files can be transferred to a nonlinear editor or over a network without the need for digitizing.*

*PCs must be installed with the included P2 driver in order to mount P2 cards. For editing, PCs must be installed with P2-compatible editing software available from various companies. Read "Notes Regarding the Handling of P2 Files Using a PC" on the back page.

SUPPORT FOR SLOW-/QUICK-MOTION RECORDING



Picture simulated

Variable Frame Rate in 720p Mode

The Variable Frame Rate (VFR) function was inherited from the Panasonic VariCam, which is widely used for producing movies, TV series, and TV commercials. It creates a wide range of film-camera-like 3D images, such as overcranking for slow-motion and undercranking for quick-motion effects.

Variable Frame Rates

59.94 Hz mode:	12/15/18/20/21/22/24/25/26/27/28/30/32/34/36/40/ 44/48/54/60 frame
50 Hz mode:	12/15/18/20/21/22/23/24/25/26/27/28/30/32/34/37/ 42/45/48/50 frame

- **Normal cinematic shooting (at 24 fps, 25 fps or 30 fps)** refers to the same rate as used in film cameras. The AG-3DP1 can record in 24 fps. Note that 25 fps and 30 fps are the standard frame rates used in the production of TV commercials, music clips and video media.
- **Overcranking (higher-speed shooting)** produces a slow-motion effect. This is especially effective for action scenes like car chases or crashes, or to create a dramatic impact in a scene. For example, when a scene is shot at 48 fps and played at 24 fps, a slow-motion effect of 1/2x is attained.
- **Undercranking (lower-speed shooting)** gives you a quick-motion effect. This technique can be combined with a warp-speed effect to give special emphasis to flowing water, fast-moving clouds, etc. For example, when a scene is shot at 12 fps and played at 24 fps, a quick-motion effect of 2x is attained.



Undercranking (lower-speed shooting)



Overcranking (higher-speed shooting)

VERSATILE RECORDING FUNCTIONS ENABLED BY FILE-BASED RECORDING



Clip Thumbnail Display and Metadata Editing

Recorded clips are automatically allocated a thumbnail image and metadata. This lets you display the thumbnail images on the LCD monitor, delete clips, and confirm or edit metadata (using the built-in Software Keyboard function).

Shot Marker*

Clips can be marked during or after recording. Categories can be freely selected, for example, OK shots/NG shots, to aid in subsequent editing.

* Shot marker cannot be used in VFR rec or interval rec.

Interval Rec Mode

This mode lets you record single-frame images at intervals ranging a minimum of 2 frames to a maximum of 10 minutes.

*Audio cannot be recorded. All of the images recorded in this mode are gathered into a single file.

SD Memory Card Slot

The AG-3DP1 comes with an SD card slot. You can create a metadata upload file (produced with P2 Viewer software*) containing information such as clip name, the name of the camera operator, the recording location, and text memos on an SD card, and load it as clip metadata.

*For details, see page 9 for information on related products.

High-Quality LCD Monitor

The AG-3DP1's LCD monitor is a 81.3 mm (3.2 inches) panel with a 16:9 aspect ratio. With approx. 921,000 dots (1920 x 480), it boasts higher resolution.

Front and Rear Audio Level Dials

Front audio level dials are provided for easy adjustment for shooting by a single operator. The channels to be adjusted can be allocated, or the dials can be nulled. Large audio level dials (CH1/CH2) with a lock mechanism are also provided at the rear of the camera recorder.

MULTI-CAMERA VERSATILITY AND OTHER SYSTEM FUNCTIONS FOR BROADCAST USE

GENLOCK IN and TC IN/OUT Terminals Support Multi-Camera Shooting

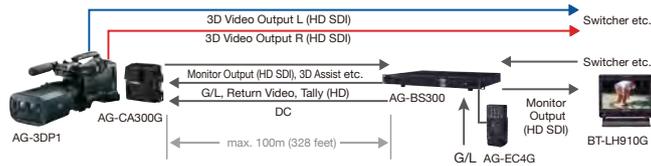
Genlock and time code (TC) input terminals let you synchronize multiple cameras for both editing use and live-relay shooting. An SMPTE time code generator/reader is built-in. TC IN/OUT terminals allow isolated camera-through connection. The genlock input terminal also makes it possible to externally lock the time code.

Supports Camera Extension System

The existing AG-CA300G/BS300/EC4G Camera Studio System for P2HD camera recorders is also supported, making it quick and easy to build a system for a 3D live relay and 3D image acquisition system using multiple cameras.

Two BNC cables allow the transmission of high-quality HD digital images, return images, tally signals, mic signals, and genlock signals over a cable length of 100 meters (328 feet) maximum. A special cable can be used to supply power to the camera.* For 3D image transmission, AG-3DP1 needs to be connected separately with dual HD SDI cables.

*Power can be supplied only when the AG-BS300 Base Station is driven by an AC power source. A separate power cord is also required between the AG-BS300 Base Station and the AG-CA300G Camera Adaptor.



Remote Control-Ready

The AG-EC4G Extension Remote Control Unit or AJ-RC10G Remote Control Unit* offer both studio use and direct connection to the AG-3DP1. They let you adjust camera images right from where you are, and even control convergence.

*The remote control unit can control only functions supported by the AG-3DP1. It cannot control unsupported keys or dials.



3D-Compatible Camera Remote Terminal

A remote terminal (super mini-jack) on the AG-3DP1 also supports remote control of focus, zoom, iris, convergence, and recording start/stop. The AG-3DA1's remote control can be used.

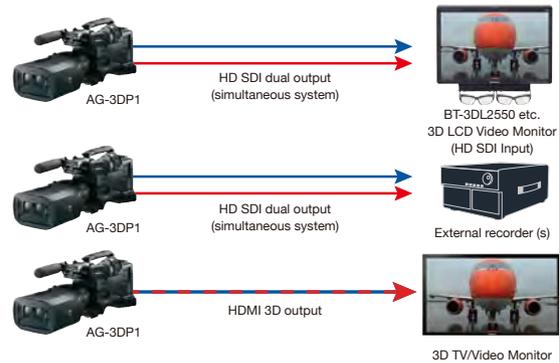
HD SDI Simultaneous Output with Sync-Rec Function

HD SDI Left/Right terminals on the AG-3DP1 allow camera-through or playback of left-channel/right-channel FULL HD 3D image outputs (simultaneous). This enables 3D images to be monitored on a BT-3DL2550 3D Video Monitor. When an external recorder is connected, line recording of camera-through FULL HD 3D video signals is also possible.

HDMI 3D Output

The AG-3DP1 features an HDMI output terminal that outputs FULL HD 3D video signals for viewing on a 3D video monitor. This terminal outputs camera-through signals or left-channel/right-channel FULL HD 3D playback signals.

*HDMI output and HD SDI output cannot be used simultaneously.



Optional Color and Black-and-White Viewfinders

The optional AJ-CVF100G HD Color Viewfinder employs a 25.4 mm (1 inch) 1,500,000-dot-equivalent (960 x 540 x 3 [RGB]) transmission-type LCOS (Liquid Crystal On Silicon) to achieve high resolution, high brightness and high response. It helps to reduce the possibility of white balance adjustment errors and other errors in recording. The 3D Assist functions can be checked in colors. The optional AJ-HVF21KG 50.8 mm (2 inches) Black-and-White HD Viewfinder can also be used.

Unislot Wireless Receiver Supported

An optional slot-in wireless receiver is supported, including 2-channel wireless receivers.

XLR Audio Input Terminals

An XLR 5-pin mic terminal is provided at the front, and two channels of XLR 3-pin audio input with +48V phantom power supply are provided at the rear for versatile audio recording use.

A Wide Range of Functions for Image Acquisition

- Back Tally & Rear Tally.
- Earphone terminal (mini-jack) and speaker.
- Multiple battery support, including Anton Bauer or IDX batteries.*

*The V-mount battery plate is required for IDX batteries.



Shown above is a sample of operation style.

DETAILS OF THE AG-3DP1

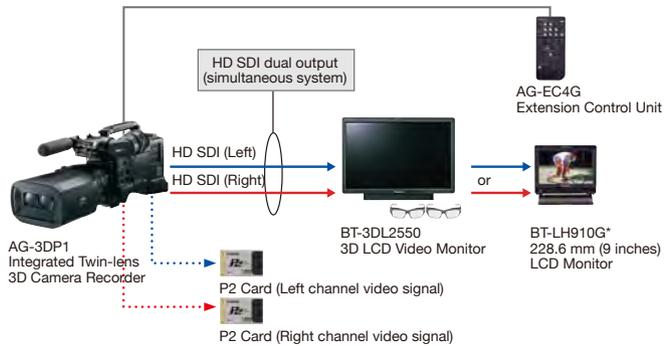


THE 3D WORKFLOW WITH THE AG-3DP1

3D Acquisition System

The AG-3DP1 connects to the BT-3DL2550 3D-Compatible LCD Video Monitor or BT-LH910G 228.6 mm (9 inches) LCD Video Monitor via an HD SDI dual link. The BT-3DL2550 enables 3D viewing. The BT-LH910G* lets you check 3D images on a 2D screen by using the 3D Assist functions. In addition, the AG-EC4G Extension Remote Control Unit puts full control over convergence and other adjustments right into your hands. Left channel/right channel acquisition data can be recorded onto two P2 cards.

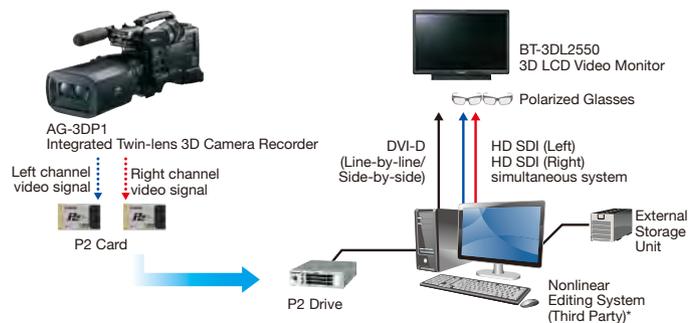
*This is a 2D display. 3D viewing is not possible.



3D Content Editing System

3D video data recorded by the AG-3DP1 can be edited by a computer-based (Windows/Mac) nonlinear editing system installed with 3D editing software* that supports existing AVC-Intra-compatible video editing. PC ingestion is done through a P2 drive in the same manner as ordinary 2D files. The data can be output to the BT-3DL2550 3D-Compatible LCD Video Monitor via an HD SDI dual link or DVI-D. Editing results can be saved in an external storage unit for handover to the subsequent process (MA/Blu-ray 3D™ authoring, etc.).

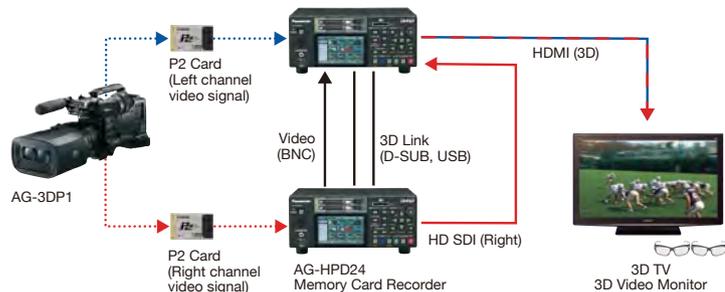
*Panasonic does not guarantee proper operation of third-party software.



3D Playback and On-Air Transmission (AG-HPD24)

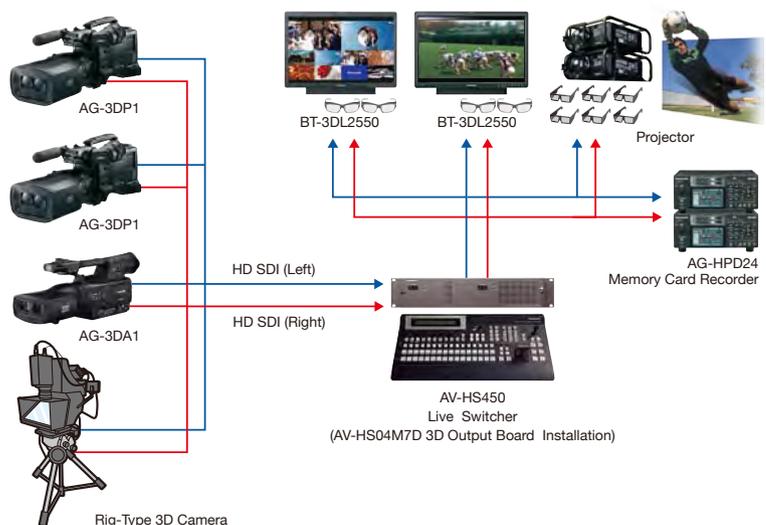
3D data recorded by the AG-3DP1 can be played with L/R sync by two AG-HPD24 Portable Recorders. 3D viewing is possible with a professional 3D monitor, 3D projector(s), or a home-use 3DTV. Synchronized L/R operation of Rec start/stop*, clip thumbnail display, clip playback* (including variable speed playback), and clip deletion are done from the control panel of the master (L-side) AG-HPD24. Text memos and shot markers can also be inserted (L-side only), with the same level of ease as with 2D content.

*External remote control via RS-422 is also supported.



On-Air Transmission with 3D Live Switching

A 3D live-relay system can be configured with multiple cameras, including the AG-3DP1 and others. Using the FULL HD 3D compatible AV-HS450N Live Switcher or AG-HMX100 Digital AV Mixer, these multiple 3D sources can be switched and transmitted. Simultaneously, the transmitted 3D images can be line recorded by using two AG-HPD24 Portable Recorders for synchronized recording.





AJ-CVF100G
25.4 mm (1 inch)
HD Color EVF



AJ-HVF21KG
50.8 mm (2 inches)
HD EVF
59.94Hz/50Hz
switchable



AJ-MC900G
Stereo Microphone



SHAN-TM700
Tripod Adaptor



AJ-P2E064XG
AJ-P2E032XG
AJ-P2E016XG
Memory Card
(P2 card E series)



RP-SDW32G/
RP-SDW16G
SDHC Memory Card

Other Manufacturer's Products



Anton/Bauer
Dionic Battery



AntonBauer
Ultra Light

Bound Cable for Camera Studio System
(between AG-BS300 and AG-CA300G)

[Canare]
V2PCS25-5CFWCE-SF-SC
(25 meters/82 feet)

V2PCS50-5CFWCE-SF-SC
(50 meters/164 feet)

V2PCS100-5CFWCE-SF-SC
(100 meters/328 feet)

Power Cable for Camera Studio System
(between AG -BS300 and AG -CA300G)

[Canare]
DC50V10-CE01PS-SC
(50 meters/164 feet)

DC100V10-CE01PS-SC
(100 meters/328 feet)

Canare Electric CO., Ltd.
<http://www.canare.co.jp/oversea/mainmenu.html>

Camera Studio System



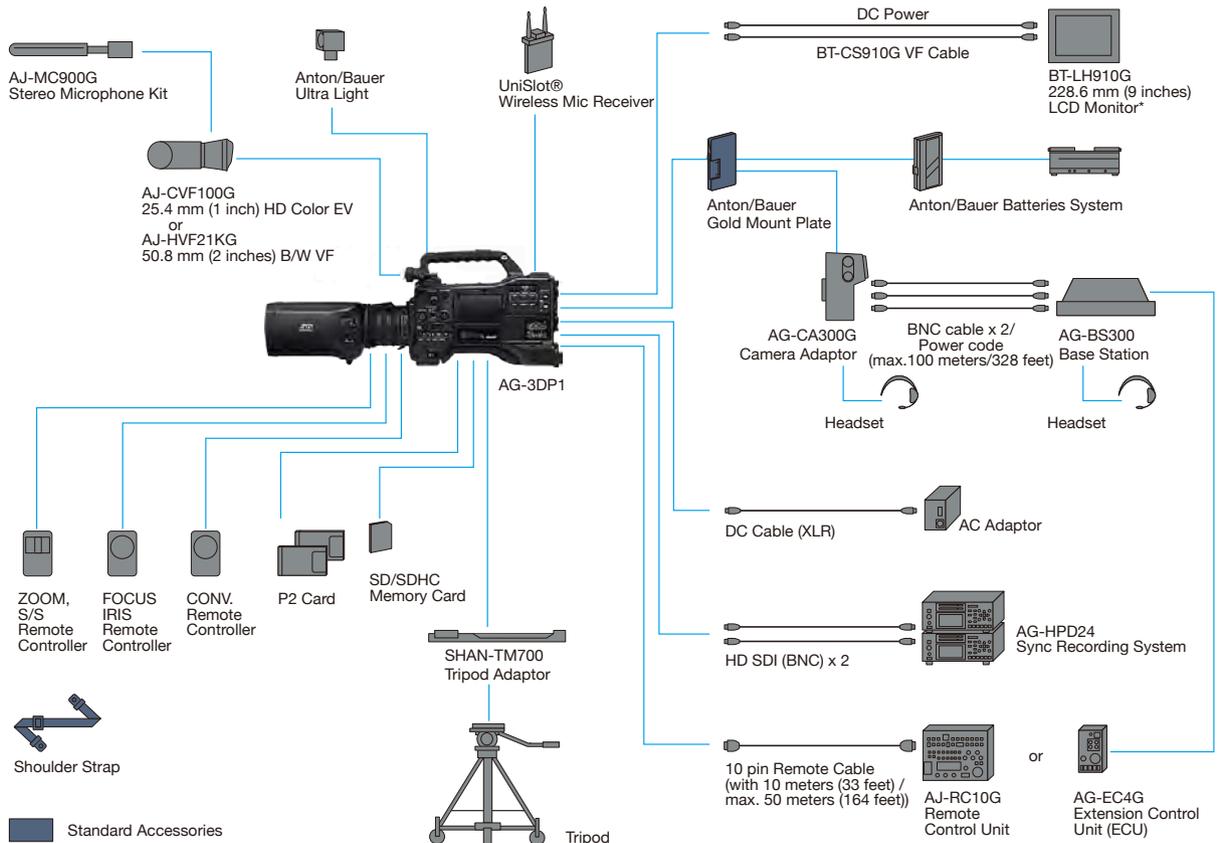
AG-CA300G
Camera Adaptor

AG-BS300
Base Station

AG-EC4G
Extension Control Unit

AJ-RC10G
RCU (Remote Control Unit)
with 10 meters (32 feet) remote control cable

AJ-C10050G
Remote Control Cable
(50 meters / 164 feet)



*Mounting bracket is required to mount on a Camera Recorder.

General

Power Supply:	DC 12 V (11 V to 17 V)
Power Consumption:	38 W (Camera only)
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (relative humidity)
Keeping Temperature:	-20 °C to 60 °C (-4 °F to 140 °F)
Weight:	Approx. 6.1 kg (13.4 lb) (camera unit only) Approx 7.9 kg (17.4 lb) (including an AJ-HVF21KG, a DIONIC battery, two P2 cards, and an AJ-MC900G microphone)
Dimensions: (W × H × D)	235 mm × 270.5 mm × 667.5 mm (camera unit only, excluding protrusions) (9-1/4 inches × 10-5/8 inches × 26-1/4 inches)

Camera Unit

Pickup Devices:	1/3-type progressive, 2.2-megapixel, 3MOS sensor × 2
Lens:	Optical 17 x, F1.6 (Wide) to F3.4 (Tele) Focal distance: f 4.6 mm to 79 mm (35 mm equivalent: 35.0 mm to 602 mm)
Optical Color Separation:	Prism system
Distance Between the Optical Axes:	Approx. 58 mm (2-5/16 inches)
Reference Plane Adjustment Range:	Approx. 1.1 m (43-5/16 inches) to ∞
ND Filter:	4 positions (CLEAR, 1/4ND, 1/16ND, 1/64ND)
Gain Settings:	0 dB, +3 dB, +6 dB, +9 dB, +12 dB
Shutter Speed:	<ul style="list-style-type: none"> • 60i/60p mode: 1/60 (OFF), 1/100, 1/120, 1/250 sec. • 30p mode: 1/30 (OFF), 1/60, 1/100, 1/120, 1/250 sec. • 24p mode: 1/24 (OFF), 1/60, 1/100, 1/120, 1/250 sec. • 50i/50p mode: 1/50 (OFF), 1/60, 1/120, 1/250 sec. • 25p mode: 1/25 (OFF), 1/50, 1/60, 1/120, 1/250 sec.
Shutter Speed: (Synchro Scan)	<ul style="list-style-type: none"> • 60i/60p mode: 1/60.0 sec. to 1/249.8 sec. • 30p mode: 1/30.0 sec. sec. to 1/249.8 sec. • 24p mode: 1/24.0 sec. to 1/249.8 sec. • 50i/50p mode: 1/50.0 sec. to 1/250.0 sec. • 25p mode: 1/25.0 sec. to 1/250.0 sec.
Shutter Speed: (Slow)	<ul style="list-style-type: none"> • 60i/60p mode: 1/15 sec., 1/30 sec. • 30p mode: 1/15 sec. • 24p mode: 1/12 sec. • 50i/50p mode: 1/12.5 sec., 1/25 sec. • 25p mode: 1/12.5 sec.
Frame Rates:	<ul style="list-style-type: none"> • 59.94 Hz mode: variable 12/15/18/20/21/22/24/25/26/27/28/30/32/34/36/ 40/44/48/54/60 fps (frames per second) • 50 Hz mode: variable 12/15/18/20/21/22/23/24/25/26/27/28/30/32/34/ 37/42/45/48/50 fps (frames per second)

Memory Card Recorder Unit

Recording Media:	P2 card
Recording Formats:	AVC-Intra 100/AVC-Intra 50
Recording/Playback Time:	AVC-Intra 100: approx. 60 min., with two 64 GB P2 cards (L/R) AVC-Intra 50: approx. 120 min., with two 64 GB P2 cards (L/R) *The times listed above can be continuously recorded as one clip. The number of recorded clips will reduce the above figures somewhat.
Recorded Video Signals:	<ul style="list-style-type: none"> • 59.94 Hz mode: 1080/59.94i, 1080/29.97pN, 1080/23.98pN, 720/59.94p, 720/29.97pN, 720/23.98pN • 50 Hz mode: 1080/50i, 1080/25pN, 720/50p, 720/25pN

Digital Video Unit

Sampling Frequency:	AVC-Intra 100: Y: 74.1758 MHz, Pb/Pr: 37.0879 MHz AVC-Intra 50: Y: 13.5 MHz, Pb/Pr: 6.75 MHz
Quantizing:	10 bit
Video Compression:	MPEG-4 AVC/H.264 Intra Profile

Digital Audio Unit

Recording Signal:	48 kHz/16 bit, 4CH
Head Room:	20 dB/18 dB Menu selectable

Video Input/Output Unit

GENLOCK IN:	BNC × 1, 1.0 V [p-p], 75 Ω
HD SDI OUT:	BNC × 2 (L/R), 0.8 V [p-p], 75 Ω
HD SDI MONITOR OUT:	BNC × 1, 0.8 V [p-p], 75 Ω
HDMI OUT:	A type × 1 • Simultaneous output with HD SDI OUT is not possible.
HD SDI RETURN IN:	BNC × 1, 0.8V [p-p], 75 Ω

Audio Input/Output Unit

MIC IN:	XLR, 5-pin, +48 V (available) available menu selections: -40 dBu/-50 dBu
AUDIO IN:	XLR × 2, 3-pin (CH1, CH2) LINE/MIC/+48 V (selectable) LINE: available menu selections: +4 dBu/0 dBu/-3 dBu MIC: available menu selections: -50 dBu/-60 dBu
WIRELESS:	25-pin, D-SUB, -40 dBu
Earphone:	ø3.5 mm stereo mini jack × 2
Internal Speaker:	28 mm diameter × 1

Other Input/Output Unit

TC IN:	BNC × 1, 0.5 V [p-p] to 8 V [p-p], 10 kΩ
TC OUT:	BNC × 1, low impedance, 2.0 V ± 0.5 V [p-p]
DC IN:	XLR × 1, 4 pins, DC 12 V (DC 11.0 V to 17.0 V)
DC OUT:	4 pins, DC 12 V (DC 11.0 V to 17.0 V), Maximum rated current: 1.5 A
REMOTE:	10 pins
CAMERA REMOTE:	ZOOM S/S: Super mini jack (2.5 mm diameter) × 1 FOCUS IRIS: Super mini jack (3.5 mm diameter) × 1 CONVERGENCE: Super mini jack (2.5 mm diameter) × 1

LCD Monitor Unit

LCD monitor:	82 mm (3.2 inch) color LCD monitor with approx. 921,000 dots (16:9)
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Standard Accessories

Accessories:	Shoulder belt, Microphone holder, XLR Connector Cap*, Lens Cap*, BNC Cap*, CD-ROM *These accessories are attached to the units.
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Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

P2 Memory Card Recorder: Lower Operating Costs, Better for the Environment

P2 Reduces Total Cost of Ownership

- (1) Faster, easier editing because digitization is not necessary
- (2) Lower media costs because memory cards are reusable
- (3) Lower maintenance costs because there is no moving mechanism

By reducing editing, media and maintenance costs, P2 can help improve your bottom line. Users can also take advantage of a special five-year free-repair service program that Panasonic offers for P2 HD equipment.

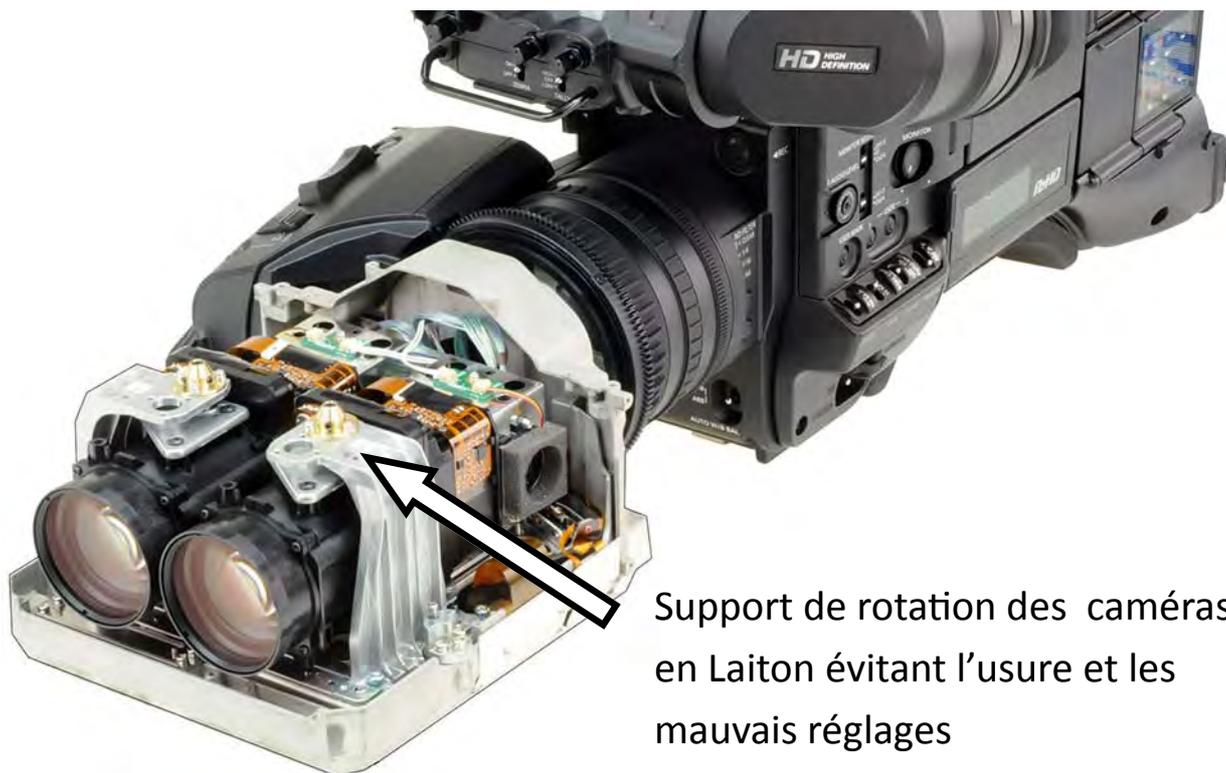


The P2 Card Helps Preserve the Environment: Repeated Reusability and Low Power Consumption

Allowing repeated file copying and initialization, a single P2 card can be used and re-used, again and again. When combined with an IT-based workflow that requires no dubbing, P2 cards can greatly reduce storage media expenses. There is no drive mechanism required, as there is for tape and disc-based recorders, so power consumption is low and size and weight are reduced. Malfunctions are less likely to occur, and there is no need to replace heads or transport components. This translates into lower costs and easier maintenance, greater energy savings, and less waste when the unit is eventually disposed of. All of these features help to conserve the environment.



AVANTAGES TECHNIQUES DE LA PANASONIC



Support de rotation des caméras en Laiton évitant l'usure et les mauvais réglages



Support solide en aluminium pour plus de fiabilité

3D PROFESSIONAL

PROFESSIONAL 3D PRODUCTION SYSTEMS

Professional 3D production system supported by Panasonic with AG-3DP1



BT-3DL2550

647.7 mm (25.5 inches) 3D LCD Video Monitor
This broadcast monitor displays 3D images with lifelike depth.



BT-LH910G

228.6 mm (9 inches) HD/SD LCD Monitor
This compact monitor features a 3D shooting assist function.

*The monitor displays in 2D. Images cannot be viewed in 3D.



AG-3DA1

Integrated Twin-Lens FULL HD
3D Camera Recorder
FULL HD 3D images are recorded in the AVCHD codec PH mode. This compact, lightweight (less than 2.4 kg (5.3 lb)) all in one unit is more flexible than a conventional rig-type 3D camera system.



AG-HPD24

Memory Card Portable Recorder
"P2 portable deck"
AVC-Intra Recording, HDMI*1 Output and USB 3.0*2 Interface. FULL HD 3D Recording and Transmission with Two Units Sync Operation.

*1: Supports 3D *2: USB3.0 host interface



AV-HS450

Multi-Format Live Switcher
This live switcher supports a variety of 3D output formats and allows wipe, dissolve and other effects. It can switch up to eight pairs of 3D video sources as standard.

*Option Boards: An AV-HS04M7D 3D SDI Output Board is required for 3D output.



AG-HMX100

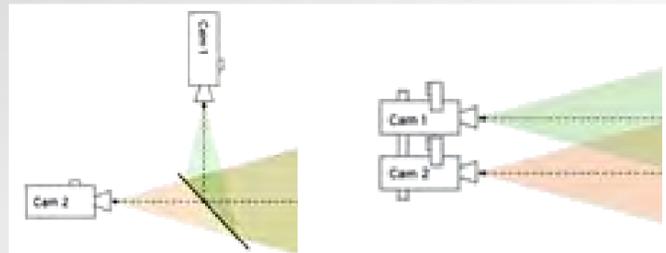
Digital AV Mixer
Low-cost HD/SD Digital AV Mixer with easy operation and versatile functions*

*Switching of images only, effects not supported.

Caméra sur rig et caméras binoculaires



HC1800 + rig



- Choix d'optique
- Choix d'entraxe
- Qualité des capteurs

CREATIF

3DA1



- Faible coût
- Mobilité
- « Prêt à tourner »
- Peu de correction en post-prod

REACTIF

3DP1



- Qualité: 4:2:2 10 bits
- « Prêt à tourner »
- Peu de correction en post-prod
- Kit adaptation studio

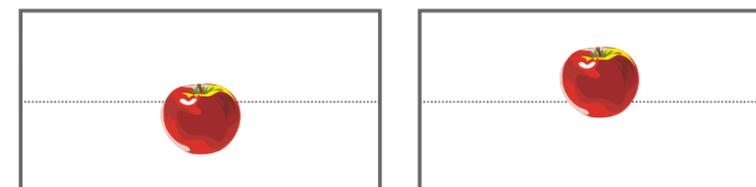
Rigs 3D: corrections importantes en post-prod



1 - Parallaxe



2 - Décalage vertical



3 - Différence de focale



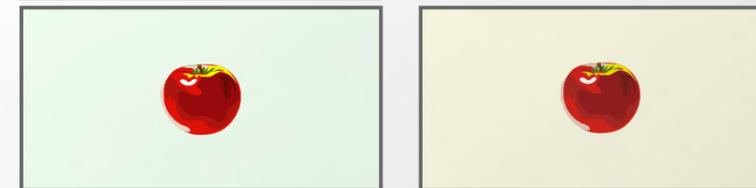
4 - Rotation / axe optique



5- Différence en luminance



6 - Différence en colorimétrie



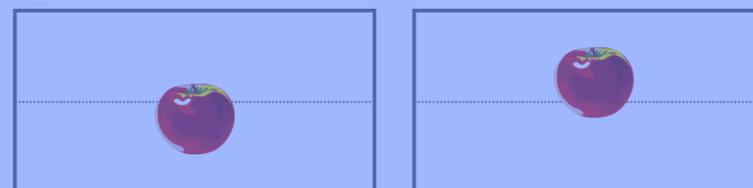
Caméra binoculaire: peu de corrections en post-prod



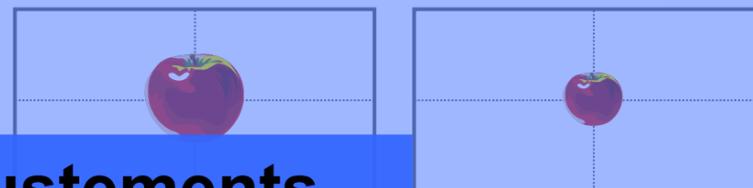
1 - Parallaxe



2 - Décalage vertical



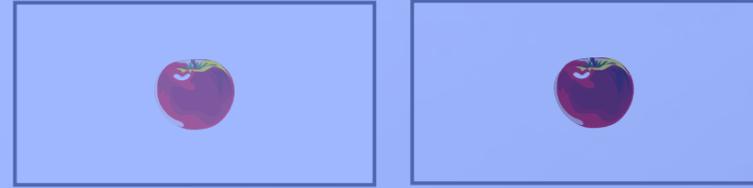
3 - Différence de focale



4 - Rotation / axe optique



5- Différence en luminance



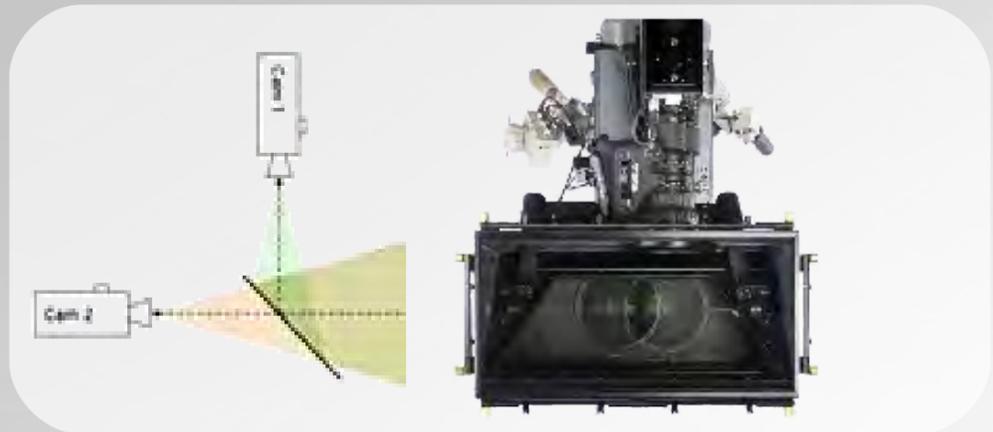
6 - Différence en colorimétrie



Ajustements automatiques



Entraxe variable



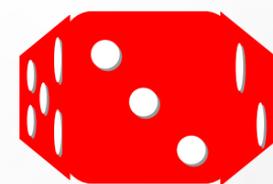
3cm



Effet de gigantisme



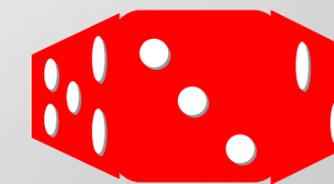
6 cm



3D naturelle

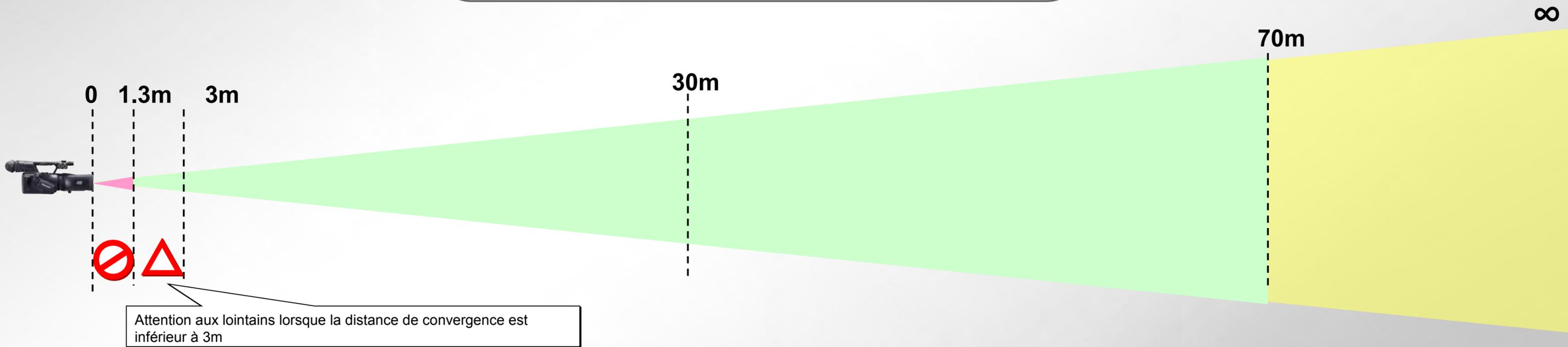
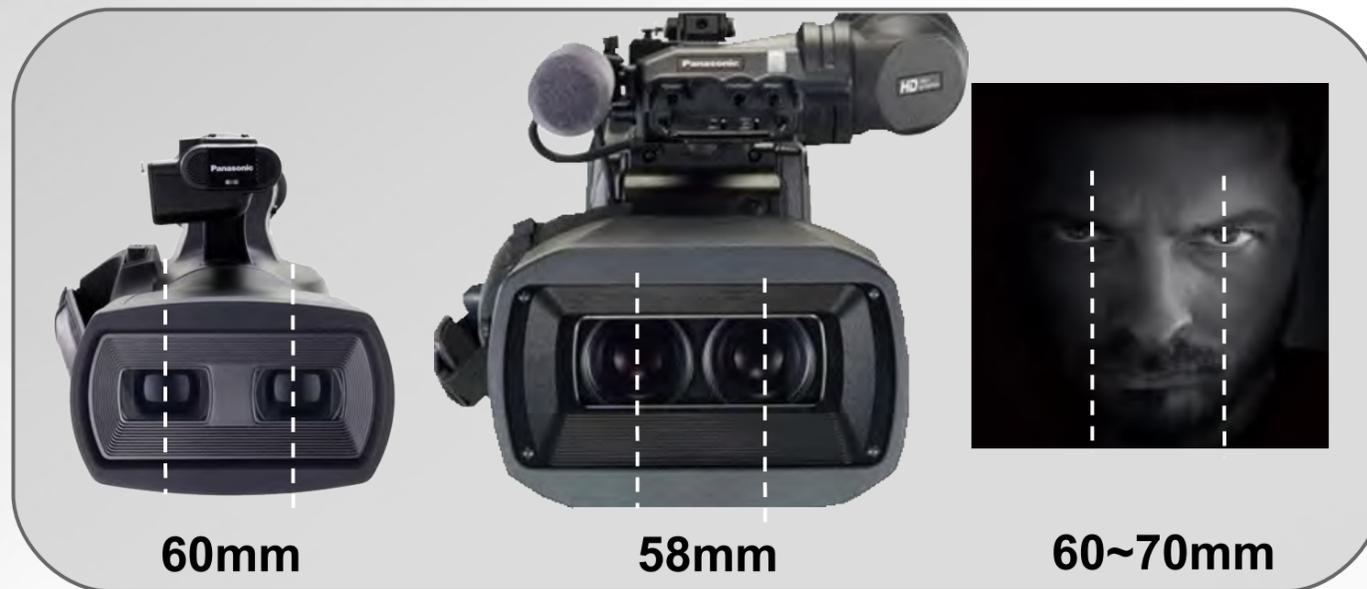


30 cm



Effet maquette

Entraxe fixe



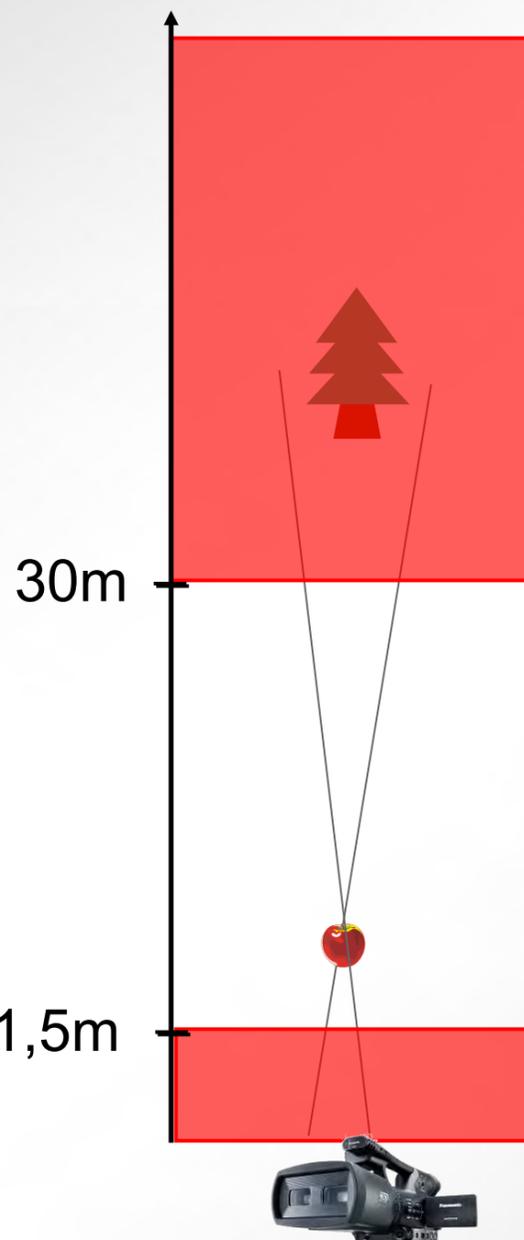
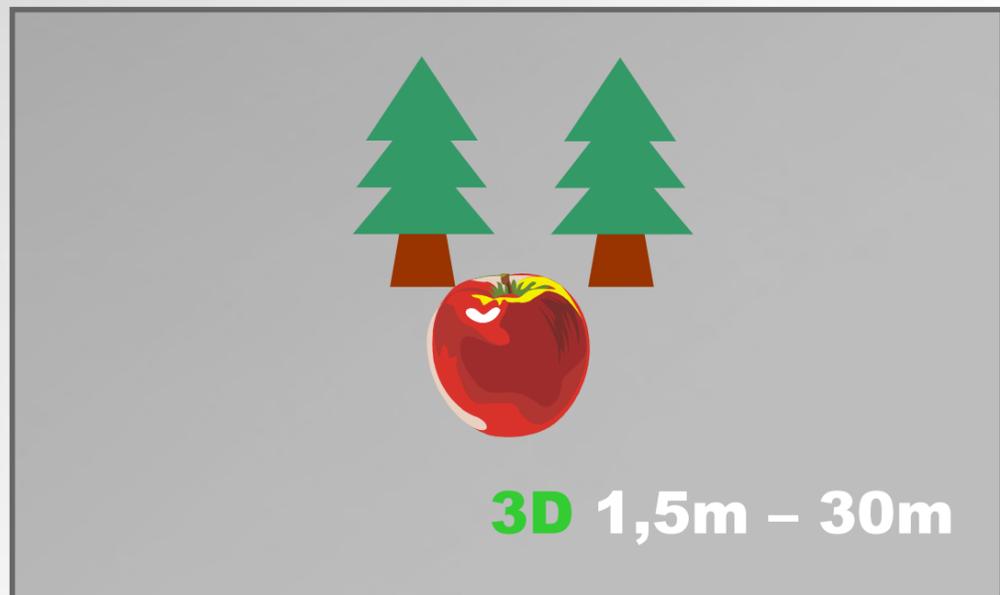
3DA1 vs 3DP1

	AG-3DA1 	AG-3DP1 
Capteurs	1/4" - 3MOS (x2) – Full HD	1/3"- 3MOS ULT (x2) - Full HD
Focales (eq. photo)	47 mm – 264 mm (x5,6)	34 mm ~ 578 mm (x17)
Codec	AVCHD	AVC-Intra
Vitesse variable	Non	Oui
Filtres neutres	Non	1/4, 1/16, 1/64
Mode auto	Non	Diaph auto et point auto
Genlock et TC in	Non	Oui
Assistant 3D	Valeurs numériques (distances min/max)	Graphique

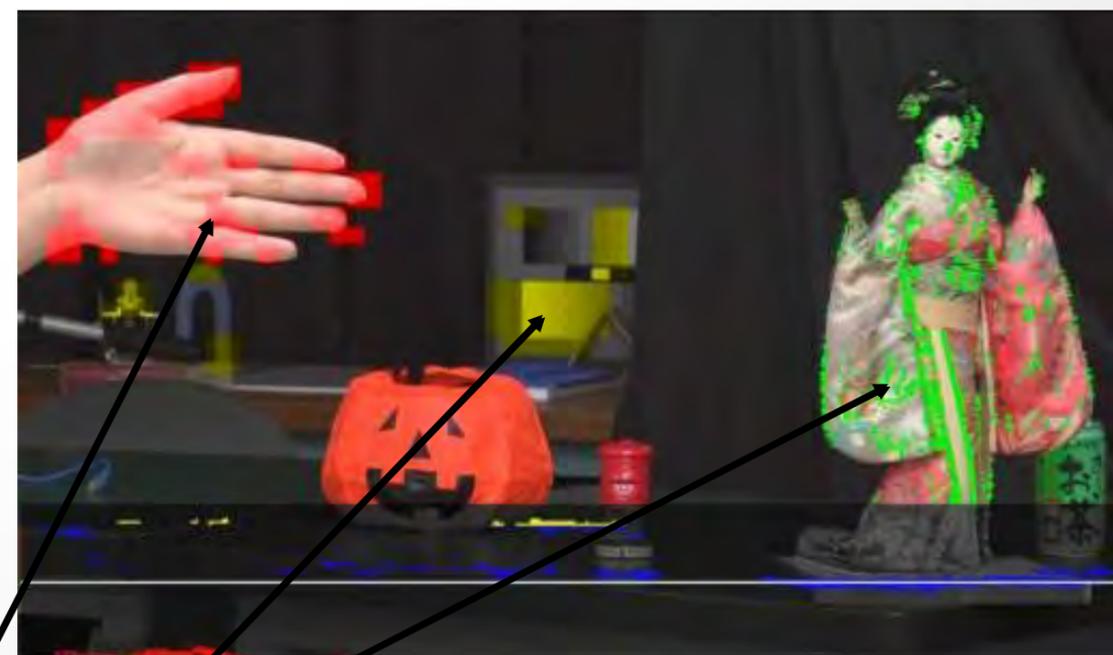
	CODEC	Compression	Débit	Résolution	Chroma	Quantif.	Durée 2x64GB 
 	AVC INTRA 100	H264 – Intra	111Mbps	1920x1080	4:2:2	10bits	1h (en 3Ds)
	AVC INTRA 50	H264 - Intra	54Mbps	1440x1080	4:2:0	10bits	2h (en 3Ds)
 	AVCHD	H264 – GOP	24Mbps	1920x1080	4:2:0	8bits	6h (en 3Ds)

Assistant 3DA1 vs Assistant 3DP1

3DA1



3DP1



Vert: plan de convergence
Jaune: alerte parallaxe positive trop forte
Rouge: alerte parallaxe negative trop forte

(les limites de parallaxe positive et négative sont programmable par menu entre 0,5 et 4%)

