

**Panasonic**

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**VARICAM**

**LT**





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VARICAM



LT



# The Cinematic VariCam Look in Your Hands

## Compact Size, Light Weight and Top Cinema Quality — The VariCam LT Debuts.

Say hello to the newest addition to Panasonic's cinema camera line.

The Cinema VariCam LT features outstanding image quality that allows you to achieve your "VISION". The advanced grading tools, in-camera dailies and proxy recording capabilities that are built into the VariCam LT are a "REVOLUTION" in streamlining workflow.

The VariCam LT has a compact and lightweight magnesium body and offers same picture quality specifications as the larger VariCam 35 cinema camera.

The super 35mm image sensor, which is the same imager as VariCam 35, features wide dynamic range, an expansive color gamut, and high sensitivity for 4K image acquisition. It has dual native ISO settings of 800 and 5000. The native 5000 ISO allows for clean shooting in very low light situations. Its size and design facilitate a wide array of shooting styles including comfortable ergonomic shoulder mounted operation or use on gimbals and drones.

One new feature that has been added to the VariCam LT is the EF lens\*1 mount which offers a wide array of lens choices. The EF mount\*1 can be removed by an end user and replaced with a PL mount (optional). This allows for even greater versatility in lens selection when shooting with the VariCam LT.

The VariCam LT workflow is very similar to that of the VariCam 35. Both cameras have a dual codec recording function that allows the user to record a primary or "main" codec as well as a smaller proxy file. In addition, each camera offers an in-camera color grading function and support for AVC-Intra 4K and Apple ProRes\*2 codecs.

Join the "REVOLUTION" and achieve your perfect "VISION".

\*1: Panasonic does not guarantee the compatibility or performance of all EF lenses.

For more details, to be updated on the Panasonic website.

\*2: ProRes is licensed from Apple Inc. Apple ProRes codec is from Atomos under license.

The use of DCF Technologies is under license from Multi-Format, Inc.



# The Cinematic VariCam Look, Stunning Image Quality

## Same Imager as VariCam 35

The VariCam LT is equipped with the super 35mm single-chip MOS sensor developed especially for the VariCam 35. It offers 4K (4096 x 2160) and UHD (3840 x 2160) resolution, and boasts high sensitivity, low noise, wide dynamic range and cinematic depth of field. This sensor received The Hollywood Post Alliance Engineering Excellence Award 2015.

## 14+ Stops of Wide Latitude

The VariCam LT has a latitude of 14+ stops. This wide dynamic range assures accurate image rendering, particularly from the critical shadow to highlight areas. The 14+ stops of dynamic range generated by the super 35mm image sensor and advanced image processing, record images by using V-Log gamma.

## Dual Native ISO of 800/5000

The VariCam LT has two native ISO settings: 800 and 5000. This means the VariCam LT achieves very high sensitivity while maintaining a low noise level at 5000 ISO. The noise level at 5000 ISO is nearly identical to that seen at 800 ISO. In order to achieve this function two dedicated analog circuits are implemented on every pixel of the imager of the VariCam LT for each native ISO before gain processing. This allows the camera to achieve much higher sensitivity without increased noise. Normally noise is introduced in the gain process of rating ISO in digital cameras. This functionality is revolutionary for low light scene shooting. Especially this ISO 5000 enables the camera to capture with very low available light maintaining a realistic mood.

## Expansive Color Gamut

The VariCam LT is equipped with "V-Gamut," giving it a wider color gamut than that of film. V-Gamut also encompasses the entire BT. 2020 color space.

## Scene Files and V-LOOK

The "V-Log" gamma curve offers 14+ stops of dynamic range and facilitates advanced color grading adjustments in post production. To reduce post production steps and increase the time available for creative image production, the VariCam LT is also equipped with a 5-mode scene file function. The V-LOOK mode, in particular, maintains 14+ stops of dynamic range within the Rec 709 standards, and applies a newly designed gamma curve to create cine-like images following primary grading. Other modes include the V-709, which is ideal for viewing on standard monitors, and "BC-LOOK," which creates a look that mimics traditional TV broadcast images.

## Monitoring Output Terminals

The VariCam LT provides down conversion to Full HD via two 3G-SDI outputs and one VF output (BNC) while shooting in 4K. Your look with in-camera color grading and information overlay can be applied to each output.



HPA 2015  
Hollywood Post Alliance  
Engineering Excellence Award Winner  
The Hollywood Post Alliance Engineering Excellence Award 2015

Super 35 mm Imager and EF Lens Mount



14+ Stop Wide Latitude



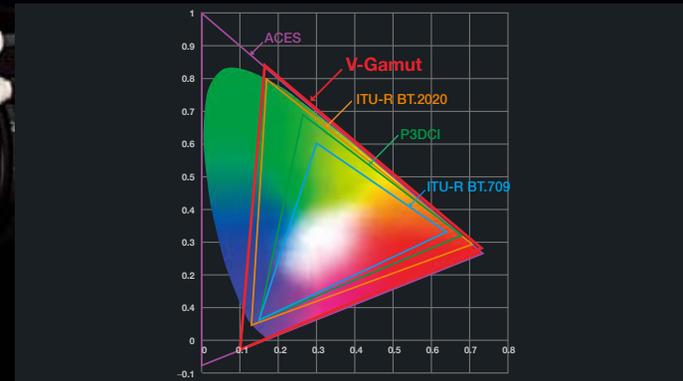
Beautiful Skin Tone



Dual Native ISO of 5000



Rear Side Connectors



Large Native Color Gamut (V-Gamut)



2K/240p Slow Motion



Detachable Control Panel with Monitor

## Advanced Shooting Functions

### Native 4K/60p Shooting

The maximum frame rate when recording in 4K (4096 x 2160) or UHD (3840x2160) resolution is 60p (60fps). This produces smooth, high-resolution images when recording fast-moving action scenes.

### 2K/HD 240p Slow Motion

When shooting in 2K (2048 x 1080) and HD (1920x1080) resolution, high-speed 240 fps recording can be used to produce an extreme slow-motion effect. This is achieved by cropping the image sensor recording area in order to achieve a faster scanning speed. Variable frame rates are available from

1 to 120 fps in AVC-Intra 2K422 and from 120 to 240 fps in AVC-Intra 2K-LT. The frame rate can be changed while recording.

### Infrared Cinematography (IR)

The VariCam LT is equipped with a detachable IR cut filter. This feature allows 4K infrared images to be acquired by replacing the filter with an bundled IR glass for shooting, to capture subjects such as nocturnal wildlife in extreme darkness. By using the IR filter to cut visible light, the VariCam LT can also serve as a creative tool to achieve unique image effects in daylight.

### Detachable Control Panel with Monitor

The supplied control panel has a built-in 3.5 type LCD display panel. It can be used for menu operation or as a live/preview monitor. The keys and dials are laid out around the display for quick and accurate operation. Frequently used settings can be accessed directly. This detachable module allows operation up to 90cm in distance.

### Standard HD SDI Interface for EVF

The VariCam LT has a regular BNC connector for the View Finder. Users can select from various HD monitors or viewfinders in addition to the new Panasonic View Finder (AU-VCVF10G). The DC power and command control connectors for the Panasonic VF are also provided.

### Toughness, Durability and Reliability

- The lens mount is made of stainless steel, and designed to prevent flange back deviation due to temperature changes.
- The camera body is made of strong rigid magnesium.
- The top and bottom panels have been made flat for easy installation of various plates and accessories.
- Mounting holes are provided on both sides as well as on the handle for convenient mounting of accessories.
- The new Shoulder Mount (AU-VSHL2G, optional) is designed for cinema-style shooting, and installs directly on the base plate.
- The Grip Module (AU-VGRP1G, optional) also supports shoulder-mounted shooting. The grip is equipped with a Rec Button, two User Buttons, and a Dial for adjusting the iris (EF lens) and audio input level.



The New Shoulder Mount with a Base Plate.



V-LOOK



IR Shooting in Daylight



EVF Connections with HD SDI and DC Power

# Revolutionary Workflow — Multi-Codec and Dailies in Camera

As of July 2016

## AVC ULTRA ProRes

### Multiple Codec 4K/UHD/2K/HD Recording

AVC-Intra 4K is a 4K-compatible version of the AVC-Intra, intra-frame compression codec that is suitable for cinema production. Using this codec, the VariCam LT can record 4K (4096 x 2160) or UHD (3840 x 2160) resolution. For 2K recording, the VariCam LT supports AVC-Intra 2K444/2K422/2K-LT. For HD recording, the VariCam LT supports AVC-Intra 444/422/100/LT and Apple ProRes 4444/HQ. Using the 512 Gbyte expressP2 card, the camera can record approximately 180 minutes of 23.98p 4K video with AVC-Intra 4K422.

\* ProRes is licensed from Apple Inc. Apple ProRes codec from Atomos under license. Atomos is trademark and copyright of Atomos Global Pty. Ltd.

### In-camera Color Grading

The VariCam LT features an in-camera color grading function (3D LUT/CDL). This enables color tuning on set as well as in the field when using the camera control panel or 3rd party software. This means dailies which had been created after shooting can now be produced on set with the camera. Grading information such as 3D LUT files and CDL files can be recorded together with the image data, allowing you to provide the same vision that you created on set to the editorial staff.

### Main and Proxy Recording

In addition to the main codec recording the VariCam LT has the ability to record files to an SD memory card. This feature lets you record an ungraded 4K master with V-Log in the main expressP2 card recorder while simultaneously recording graded HD files on the SD memory card. The primary recording data is used to create deliverables while the proxy recordings are used for viewing or off-line editing. The file name and time code of each file will match exactly.

### Wired/Wireless\* LAN Connection

Wired remote operation is enabled with the optional AK-HRP200G Remote Operation Panel via LAN connection (with limitations on some functions). The wired/wireless LAN connection also uses applicable onset and grading software (produced by a third party) to enable in-camera color grading by wired/wireless remote control. In addition, proxy file uploading is also possible.

\*For a wireless LAN connection, the AJ-WM50 or AJ-WM30 Wireless Module is required.

### RAW Output

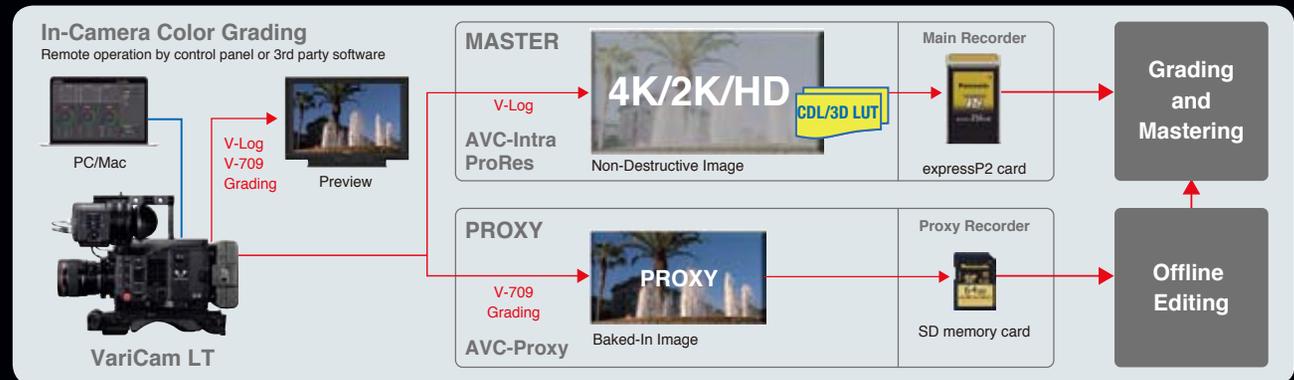
RAW data can be output from the SDI output terminals. This enables RAW acquisition from other-brand RAW recorders. Equipped with two SDI output terminals, it allows 4K/60p output.

\* Future support planned from September, 2016.

\* Please see the home page for the RAW recorder manufacturer for compatibility details.  
<http://pro-av.panasonic.net/en/varicam/lt/index.html>  
<https://www.convergent-design.com/plus>  
<https://www.atomos.com/shogun/>

### Direct Adjustment of Audio Levels

The audio input level can be directly adjusted using the Dial on the Grip Module (optional) or the Menu Dial on the side of the VariCam. This is convenient for adjusting the audio level when shooting by yourself, or when holding the camera recorder on your shoulder.



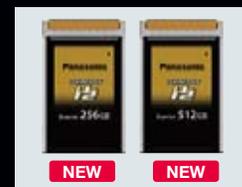
## Flexible System Configuration



AJ-WM30  
AJ-WM50  
Wireless Module  
\*Not available in some areas.



AJ-P2E030FG (30 GB)  
AJ-P2E060FG (60 GB)  
Memory Card  
P2card F series\*\*1



AU-XP0256BG (256 GB)  
AU-XP0512BG (512 GB)  
Memory Card  
expressP2card B series\*\*2



AU-XPD1  
Memory Card Drive  
expressP2 drive\*\*2



AK-HRP200G  
Remote Operation Panel (ROP)

\*\*1: 2K/HD only.

\*\*2: Exchanging AU-XPD1 hardware, free of charge, might be necessary when expressP2 Card B series used on AU-XPD1. For details please visit Panasonic website. (<http://pro-av.panasonic.net/>). \*Notes when using expressP2 card B series\*.

# VariCam LT Specifications

As of July 2016

## General Specification

Power:	DC 12 V (11.0 V – 17.0 V)
Power Consumption:	47 W, with body only 77 W, with all optional accessories connected and maximum power supplied from each output terminal
Operating Temperature:	0 °C to 40 °C (32°F to 104°F)
Operating Humidity:	10% to 85% (relative humidity)
Storage Temperature:	-20 °C to 60 °C (-4°F to 140°F)
Weight:	Approx. 2.7 kg (6.0 lb), excluding handle and accessories Approx. 3.0kg (6.6 lb), including handle, excluding accessories
Dimensions: (W x H x D)	184.0 mm x 230.5 mm x 247.0 mm (7-1/4 inches x 9-3/32 inches x 9-3/4 inches) Body only, excluding protrusion and accessories

Ensure that the total current taken from the DC OUT terminal, LENS/GRIP terminal, DC OUT/RS terminal and USB HOST terminal does not exceed 30 W.

## Camera Unit

Pickup Device:	Super 35 mm, MOS sensor
Number of Pixels:	Total pixels: Approx.10.3 million pixels, Effective pixels: Approx. 8.9 million pixels
Lens Mount:	EF mount
Optical Filter:	ND filter: 1: CLEAR, 2: 0.6 ND, 3: 1.2 ND, 4: 1.8 ND
Gain setting:	Native ISO: 800, 5000 800 Base: 200 to 4000 5000 Base: 1250 to 12800 [ISO] mode: ISO200 to ISO12800 [dB] mode: -12 dB to 14 dB (2 dB step)
Shutter Speed:	[deg] mode: 1.0 deg to 358 deg (0.1 deg step) [sec] mode: 1/24 sec. to 1/250 sec. (for 24p)
Sensitivity:	[GAIN MODE]=[NORMAL], [GAMMA]=[VIDE045] F7 (2000 lx, 3200k, 89.9% reflection, 1080/59.94p) F8 (2000 lx, 3200k, 89.9% reflection, 1080/50p)

## Memory Card Recorder

Recording Media:	Main slot x 1: expressP2 card, P2 card Sub slot x 1: SD memory card
Recording Resolution:	4096 x 2160 (4K), 3840 x 2160 (UHD), 2048 x 1080 (2K), 1920 x 1080 (HD)
Recording Frame Rate:	4K/UHD: Maximum 60fps or 50 fps 2K/HD: Maximum 240fps or 200 fps

System Frequency:	59.94p, 50p, 29.97p, 25p, 24p, 23.98p, 59.94i, 50i
Recording Format: (Main Recorder)	AVC-Intra4K422, AVC-Intra4K-LT, AVC-Intra2K444, AVC-Intra2K422, AVC-Intra2K-LT, AVC-Intra444,AVC-Intra422, AVC-Intra-LT, AVC-Intra100, ProRes 422 HQ, ProRes 4444
Recording Format (Sub Recorder):	AVC-LongG6Recording
Video Signal:	4096 x 2160/59.94p, 50p, 29.97p, 25p, 24p, 23.98p 3840 x 2160/59.94p, 50p, 29.97p, 25p, 23.98p 2048 x 1080/59.94p, 50p, 29.97p, 25p, 24p, 23.98p 1920 x 1080/59.94p, 50p, 29.97p, 25p, 23.98p, 59.94i, 50i
Recording Time*1: (Main Codec)	When using expressP2 card 512 GB and when [FREQUENCY]= [23.98p] AVC-Intra4K422, 23.98 fps: Approx. 180 min. AVC-Intra4K422, VFR ON, 30 fps: Approx. 146 min. AVC-Intra4K-LT, VFR ON, 60 fps: Approx. 128 min. AVC-Intra422, VFR ON, 60 fps: Approx. 260 min. ProRes 422 HQ VFR ON, 60fps: Approx. 134 min.
Recording Time*1: (Sub Codec)	AVC-LongG6: Approx. 655 min.

## Digital Video

Quantizing:	AVC-Intra2K444, AVC-Intra444: 12 bit Others: 10 bit
Video Compression Format:	AVC-Intra4K422, AVC-Intra4K-LT, AVC-Intra2K444, AVC-Intra2K422, AVC-Intra2K-LT, AVC-Intra444,AVC-Intra422, AVC-Intra-LT, AVC-Intra100: MPEG-4 AVC/H.264 Intra Profile ProRes 422 HQ, ProRes 4444: Apple ProRes*2

## Digital Audio

Recording Audio Signal:	48 kHz/24 bit, 4 ch
Headroom:	18 dB/20 dB switchable menu

## AVC Proxy

File Format:	MOV
Video Compression Format:	MPEG-4 AVC/H.264 Intra Profile
Audio Compression Format:	AAC
Recording Time*3	Approx. 655 min. When using a 64 GB SDXC memory card

## Video Input/Output

SDI OUT1/ SDI OUT2:	HD (1.5 G)/3G-SDI, 0.8 V[p-p], 75 Ω
VF SDI:	HD (1.5 G)/3G-SDI, 0.8 V[p-p], 75 Ω

## Audio Input/Output

INPUT 1/2:	XLR x 1, 5-pin
INPUT 3/ INPUT 4:	XLR x 2, 3-pin, Supports menu switching to select LINE/MIC or enable/disable the power supply of the microphone.
PHONES:	Stereo mini jack
Speaker:	20 mm diameter, round x 1

## Other Input/Output

GENLOCK IN:	HD (1.5 G) /3G-SDI, 0.8 V[p-p], 75 Ω
TC IN/OUT:	BNC x 1, Input/Output switching Input: 0.5 V [p-p] to 8 V [p-p], 10 kΩ Output: 2.0 V [p-p] ± 0.5 V[p-p], low impedance
DC IN:	XLR x 1, 4-pin, DC 12 V (DC 11.0 V – 17.0 V)
DC OUT/RS:	4-pin, DC 12 V (DC 11.0 V – 17.0 V), maximum output current 1.0 A
DC OUT:	2-pin, DC12 V (DC 11.0 V – 17.0 V), maximum output current 1.0 A
LENS/GRIP:	12-pin
LAN:	100BASE-TX/10BASE-T
USB DEVICE:	USB2.0 devices : Type B connector, 4-pin
USB HOST:	USB2.0 host : Type A connector, 4-pin
CONTROL PANEL:	20-pin, control panel contact terminals
EF Mounting Contact:	8-pin

## Control Panel

Display Panel:	LCD, 3.5-type QHD color monitor, approx. 1.56 million dots
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\*1: Figures are for continuous recording as one clips. Depending on the number or clips, the overall recording time may be shorter than the above.

\*2: ProRes is licensed from Apple Inc. Apple ProRes codec is under license from Atomos. Atomos is a trademark and copyright of Atomos Global Pty. Ltd.

\*3: Reference value for continuous recording. The recording time may differ depending on the scene or the number of clips.

## VariCam Series

C I N E M A  
**V 35**  
VARICAM



4K Camera Recorder  
AU-V35C1G/AU-VREC1G



This high-end model provides the highest level of picture quality in the VariCam Series. Combining the 4K camera module, featuring a PL lens mount and super 35mm image sensor, with the recording module enables AVC-Intra4K444/24p, 4K422/60p, 4K-LT/120p acquisition. The Codex V-RAW recorder can also be used for 4K/120-fps uncompressed RAW Recording.

**V HS**  
VARICAM

2/3-type HD Camera Recorder  
AU-V23HS1G with AU-VREC1G



Equipped with a 2/3-type lens mount, the VariCam HS enables HD acquisition with a high-speed frame rate of 240 fps max. The recorder module is the same as that of the VariCam 35. By simply exchanging the camera module with the AU-V23HS1G 2/3-type HD camera module, this model is capable of high-speed captures.

## 4K Line-Up



### 4K Camera Recorder

**AG-DVX200**

This 4K camera recorder with integrated lens offers excellent mobility. Its large 4/3-type image sensor produces superb bokeh effects, and a dynamic range with 12 stops of latitude, and the 4K/24p, UHD/60p, FHD/60p multi-codec renders high-quality images. A built-in 13x zoom lens combines with a high-speed, high-precision full-auto function and professional manual function to provide levels of operating ease and maneuverability that only a camera with an integrated lens can do.

### Digital Camera/Interface Unit

**AG-GH4U**

This digital single lens mirrorless camera excels in 4K video recording (Professional Interface Unit Model). V-Log L\*1 adds a dynamic range with 12 stops of latitude. The interface unit features a Quad Link SDI output\*2 that connects to professional 4K recorders and 4K monitors, as well as 2 channels of XLR audio input, and TC input.

\*1: You may need to update the firmware. Please refer to "service and support" on the Panasonic Website.

\*2: Motion pictures cannot be recorded onto the memory card in the camera when 4:2:2/10 bit output is selected.



### 787.4 mm (31 inches) 4K LCD Monitor

**BT-4LH310**

This reference monitor is actively used in 4K, 2K, and HD image production. BT-4LH310 offers 4K (4096 x 2160), QFHD (3840 x 2160) resolution and a DCI (P3) color gamut. An LUT (Look-up Table) upload function also supports digital cinema color management.

**Panasonic**<sup>®</sup>

Panasonic Corporation  
AVC Networks Company  
1-15 Matsuo-cho, Kadoma, Osaka 571-8504 Japan  
<http://pro-av.panasonic.net/>

<http://pro-av.panasonic.net/en/varicam/>  
Facebook: <https://www.facebook.com/Varicam>  
Twitter: <https://twitter.com/theVaricam>

