

Panasonic

BT-4LH310

787.4 mm (31 inches) 4K LCD Monitor

4K
PROFESSIONAL
BT-4LH310



PROFESSIONAL
4K (4096 X 2160) MONITOR

**A Professional Reference Monitor
Supporting 4K Image Production
for Broadcasting and Cinema**



Picture simulated



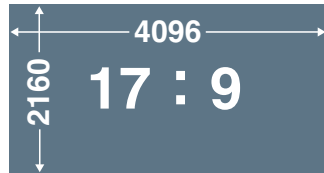
PROFESSIONAL 4K (4096 X 2160) MONITOR

Panasonic introduces the BT-4LH310 787.4 mm (31 inches) 4K LCD monitor, to provide powerful support for 4K and 2K/HD image production for broadcasting and cinema applications. The BT-4LH310 boasts stunning display resolution in both 4K (4096 x 2160) and QFHD (3840 x 2160). Its reference-level image quality and excellent color reproduction meet the DCI (P3) color gamut standards. Its new LUT (Look Up Table) upload function (To be supported soon) also allows high-precision color management in a digital cinema workflow. In addition, this LCD monitor comes with a variety of display functions to assist video production, such as Zoom, Focus-in-Red and Y Map, as well as other handy functions that streamline production activities, including Frame Grab and Error Indication. The rugged aluminum frame and AC/DC power capability ensure high mobility.

High Image Quality to Meet 4K Image Production Needs

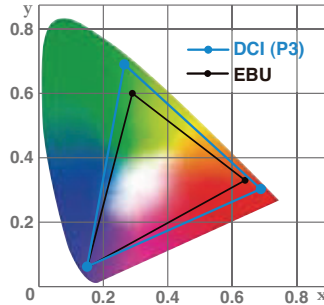
4096 x 2160 Resolution

Supports both 4096 x 2160 resolution (17:9 aspect ratio) and 3840 x 2160 QFHD resolution (four times the resolution of Full-HD). The LCD panel can be used for 4K image production for broadcasting and movies.



DCI (P3) Color Gamut

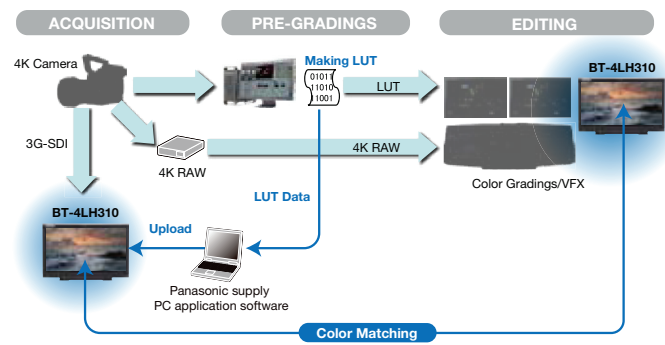
Surpasses the EBU TV color gamut, and covers 96% (u', v' conversion) of the DCI (P3) color gamut for digital cinema use. The LCD monitor displays colors accurately. It has a 100% color gamut coverage for BT709, EBU and SMPTE-C.



New LUT Upload Function*

Capable of LUT (look-up table) uploading. Brings high-precision color management to the digital cinema workflow. When shooting, images can be checked on the LCD monitor with the same color setting as that used for editing.

* A PC and LUT upload application software are required (to be supported soon). For more information, visit the Panasonic website [<http://pro-av.panasonic.net/>].

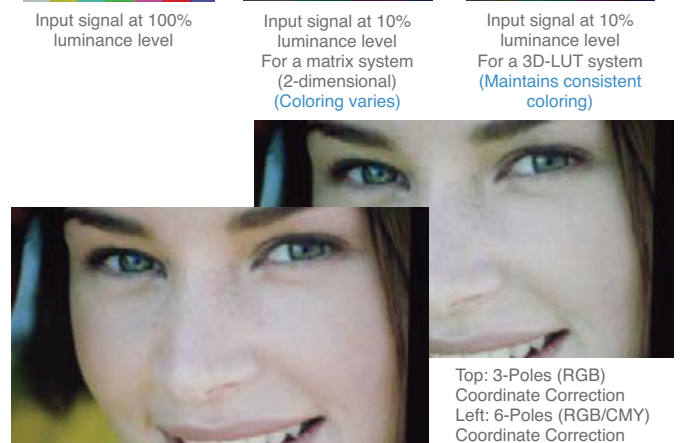
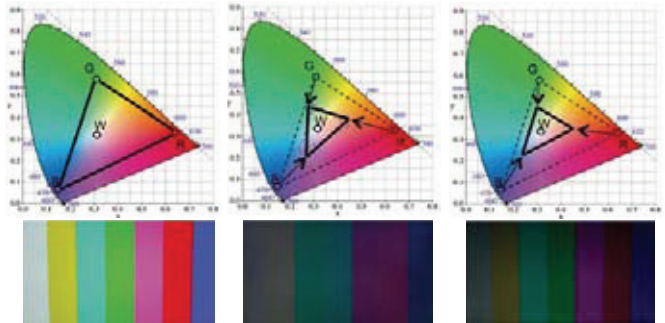


IPS Panel with High Contrast, 10 bit and Wide Viewing Angle

- **1450:1 High Contrast:** Delivers sharp, clear 4K images.
- **10 bit Panel:** 10 bit processing produces 1,070,000,000 display colors for extremely smooth gradation.
- **178° Wide Viewing Angle:** Wide 178° viewing angle in both horizontal and vertical directions. The high-quality image display shows practically no color shift even when viewed at an angle of 45°.

3D-LUT and 6-Pole Color Correction

Eliminates color phase shifts (drift) in the LCD panel caused by luminance level differences. By providing a look-up table for each luminance level and applying 12 bit image processing to each RGB color, it balances the six coordinate poles of the three primary colors (RGB) and their complementary colors (CMY). This helps to reproduce the intermediate shades of extremely fine colors.



Functions to Assist 4K/2K/HD Video Shooting

Focus Assist

Equipped with Focus-in-Red and Zoom functions to help achieve precise focusing when shooting with a 4K/2K/HD camera.

- **Focus-in-Red:** Emphasizes the sharply focused area of the image by showing it in an easily visible red.
- **Zoom (4K):** Enlarges (4x normal size) the center section of the image or one of the quarter sections and displays it on the full screen for accurate, easy focusing.



Focus-in-Red Display



Enlarges the center section of the image or one of the quarter sections



Zoom Display (Center)

Luminance, Zebra and RGB Display Modes

- **Y Map:** Allows quick visual confirmation of scene luminance levels via means of assigning a simple color code for each luminance step, includes reference chart.
- **Zebra:** Can be operated in the same way as the Zebra function of a camera viewfinder.
- **RGB Color:** The display of each RGB color can be turned on and off individually.



Y Map Display



Zebra Display

Markers and Grid

- **Aspect Marker:** Capable of indicating an image area in one of up to eight aspect ratios (16:9 (only when 17:9 is set), 4:3, 13:9, 14:9, CNSCO2.39, CNSCO2.35, 2:1 and VISTA).
- **Safe Area Marker (17:9/16:9/4:3):** 95%, 93%, 90%, 88%, 80%, USER, DOT/LINE or VAR marker (selectable)
- **Center Marker:** Can be displayed together with another marker.
- **Cross Hatch Grid:** Allows easy checking of camera tilt.

Diverse Functions for Easier Operation

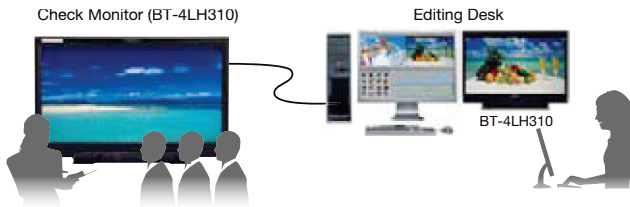
New Quad Display (2K/HD)

Taking advantage of 4K resolution, the Quad Display function displays a waveform monitor (WFM) and a vector scope (VSC) as well as one of the Focus-in-Red, Y Map and Zebra assist functions simultaneously with a full-pixel image from a 2K (2048 x 1080) or HD input source. This function also allows a single BT-4LH310 to be used as four 2K/HD monitors. It displays full-pixel images without resizing.

* WFM/VSC cannot be displayed with a 4K signal input.

New Frame Grab

Frame grab allows for a still image to be captured from video and displayed on the monitor. This function is useful for comparing camera angles or colors between takes or scenes.



New Error Indication

Transmission and other errors are detected during SDI input, and the error status is displayed and logged.



Audio Level Meter

The audio level meter can be overlaid on the displayed image. Up to eight channels can be simultaneously displayed. A peak hold function is included. For 3G-SDI input, channels 1-8, or channels 9-16 can be selected.

Time Code/Closed Caption (2K/HD) Display

The time code display shows the UB value on one line and VTC/UB or LTC/UB simultaneously on two lines. The closed caption function supports EIA/CEA-708 in compliance with HD SDI CC standards.



Sample display of the input source image (upper left), Focus-in-Red (lower left), WFM (upper right) and VSC (lower right)
(All images are simulated.)



Sample display of images from four 2K (2048 x 1080) or HD input sources.
(All images are simulated.)

Specifications and Functions for Mobility

Rugged Aluminum Frame

The rugged aluminum frame ensures durability and allows the BT-4LH310 to be used for in-the-field use.



Aluminum Frame

28 V DC Power

AC/DC power supply compatibility (AC takes priority when connected simultaneously). The 28 V DC power supply supports battery use.



DC Input Connector/AC Input Connector

Fanless

Fanless for quiet operation, the BT-4LH310 is ideal for use in studios, on production sets or in edit rooms.

Mercury Free, LED Backlight

Backlight contains no mercury as an environmental protection measure.

Broadcast and Image Production Functions

- Tally lamp (red/green/amber).
- Speakers and headphone jack on the front panel.
- Stand included as standard equipment (detachable).
- Key Lock function disables front panel operation/control functions, except for the power switch, menu operation and audio level adjustment.
- Functions can be allocated to five function keys for one-touch operation.
- Energy-saving Auto Power Down (when there is no signal input or operation)

Various Interfaces for 4K Video Input and Others



Three Types of 4K Video Input

The BT-4LH310 includes three interfaces for 4K video input as standard:

- (1) 3G-SDI (BNC): 4 lines
- (2) DisplayPort: 2 lines or 1 line
- (3) HDMI: 2 lines or 1 line

These interfaces enable versatile system configuration with various 4K cameras and systems for broadcasting and cinema production (4K/2K/HD).

* Compatible interfaces vary depending on the resolution, color space, bit depth and frame frequency. For more information, see the table below.

RS-485, RS-232C and GPI Remote

RS-485 (RJ-45), RS-232C (9 pin) and GPI (9 pin) remote inputs allow remote control of the BT-4LH310.

Calibration Function

The built-in calibration function can be used to automatically adjust the white balance, which changes with time, by using a commercially available probe sensor and display analyzer (compatible models listed below).



[Compatible probe sensor and display analyzer models]

- **Konica Minolta**
 Probe sensor: CA-PU32/PU35/PSU32/PSU35
 Display analyzer: CA-310
 Konica Minolta, Inc. [<http://www.konicaminolta.com/>]
- **Photo Research**
 Probe sensor: PR-655*
 Photo Research, Inc [<http://www.photoresearch.com/>]
- **Xrite**
 Probe sensor: i1-Pro*
 X-Rite Inc. [<http://www.xrite.com/>]

* When the PR-655 or i1-Pro is used to make adjustments, a PC and the automatic adjustment application software (downloadable from the Panasonic website) are required (to be supported soon).

4K (3840 x 2160 Resolution) Video Inputs

*The numerical value in a parenthesis shows the number of the cables simultaneously connected to each terminal.

color space	YCbCr 4:2:2						YCbCr 4:4:4 / RGB 4:4:4			
	8 bit		10 bit		12 bit		8 bit		10 bit	
Max. bit	24, 25, 30	50, 60	24, 25, 30	50, 60	24, 25, 30	50, 60	24, 25, 30	50, 60	24, 25, 30	50, 60
HDMI	√ (1)	√ (2)			√ (1)	√ (2)	√ (1)	√ (2)		
DisplayPort							√ (1)	√ (2)	√ (1)	√ (2)
3G-SDI	√ (4)	√ (4)	√ (4)	√ (4)	√ (4)	√ (4)	√ (4)		√ (4)	

4K (4096 x 2160 Resolution) Video Inputs

*The numerical value in a parenthesis shows the number of the cables simultaneously connected to each terminal.

color space	YCbCr 4:2:2									YCbCr 4:4:4 / RGB 4:4:4								
	8 bit			10 bit			12 bit			8 bit			10 bit			12 bit		
Frame frequency (Hz)	24	25	50, 60	24	25	50, 60	24	25	50, 60	24	25	50, 60	24	25	50, 60	24	25	50, 60
HDMI	√ (1)		√ (2)				√ (1)		√ (2)	√ (1)		√ (2)						
DisplayPort										√ (1)		√ (2)	√ (1)		√ (2)			
3G-SDI	√ (4)	√ (4)	√ (4)	√ (4)	√ (4)	√ (4)	√ (4)	√ (4)	√ (4)	√ (4)	√ (4)		√ (4)	√ (4)		√ (4)	√ (4)	

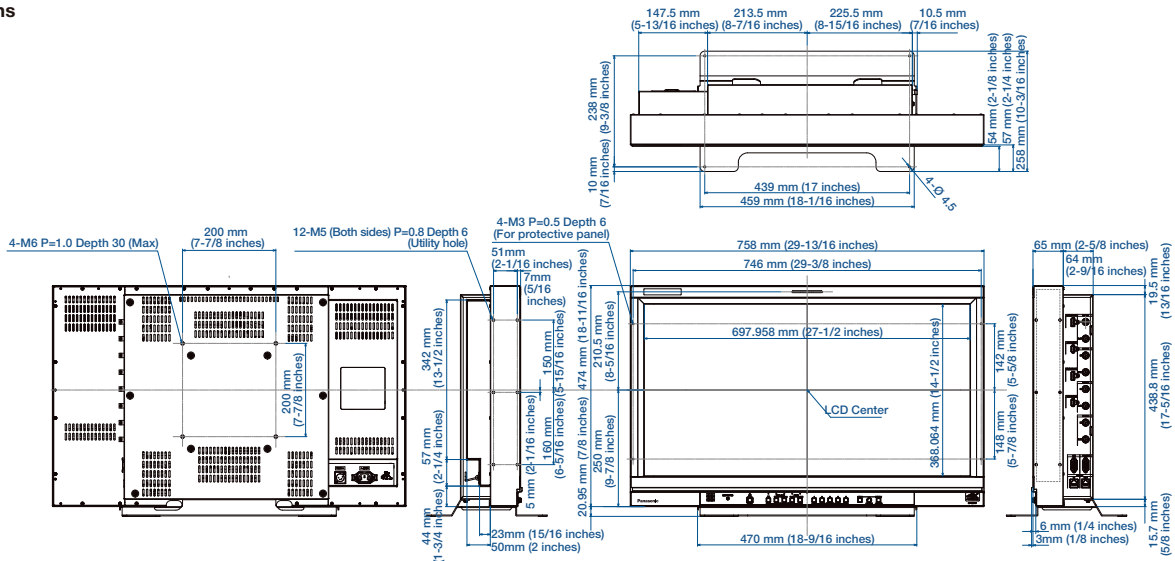
General

Power supply:	AC: 100 V - 240 V, 50 Hz/60 Hz DC: 28 V (23.4 V - 30.0 V)
Power Consumption:	AC: 1.71 A - 0.67 A, DC: 4.59 A
Operating Temperature:	5 °C to 35 °C (41 °F to 95 °F) (up to 2 000 m above sea level)
Operating Humidity:	20% to 80% (non-condensing)
Storage Temperature:	-20 °C to 60 °C (-4 °F to 140 °F)
Weight:	Approx. 20.0 kg (44.1 lbs) (including stand) Approx. 18.5 kg (40.8 lbs) (unit only, not including stand)
Dimensions: (W x H x D)	758 mm x 495 mm x 258 mm (including stand) (29-13/16 inches x 19-1/2 inches x 10-3/16 inches) 758 mm x 474 mm x 132 mm (unit only, not including stand) (29-13/16 inches x 18-5/8 inches x 5-3/16 inches)

Display Panel

Dimensions:	789 mm (31.1 inches) (effective display area)
Aspect Ratio:	17:9
Pixel Number:	4 096 x 2 160
Display Colors:	Approx. 1 070 000 000
Viewing angle:	178° of horizontal, 178° of vertical (contrast > 10:1)

Dimensions



*When the unit will be permanently installed in one place, we recommend securing it in place using the screw holes at the bottom of the stand. Weight and dimensions shown are approximate. Specifications are subject to change without notice.

Please refer to the latest information, etc., at the following Panasonic web site.



<http://pro-av.panasonic.net/>

Panasonic®

Panasonic Corporation
AVC Networks Company
 2-15 Matsuba-cho, Kadoma, Osaka 571-8503
 Japan
<http://pro-av.panasonic.net/>

[Countries and Regions]

Argentina	+54 11 4122 7200	Kuwait	+96 522431385
Australia	+61 (0) 2 9491 7400	Lebanon	+96 11665557
Bahrain	+973 252292	Malaysia	+60 3 7809 7888
Brazil	+55 11 3889 4035	Mexico	+52 55 5488 1000
Canada	+1 905 624 5010	Netherlands, Belgium	
China	+86 10 6515 8828	New Zealand	+31 73 640 2729
Hong Kong	+852 2313 0888	Norway	+47 67 91 78 00
Czech Republic:	+421 (0) 903 447 757	Pakistan	+92 5370320 (SNT)
Denmark	+45 43 20 08 57	Palestine	+972 2 2988750
Egypt	+20 2 23938151	Panama	+507 229 2955
Finland, Latvia, Lithuania, Estonia	+358 (9) 521 52 53	Philippines	+63 2 633 6163
France	+33 (0) 1 47 91 64 00	Poland	+48 (22) 338 1100
Germany, Austria, Switzerland	+49 (0) 6103 313887	Portugal	+351 21 425 77 04
Greece	+30 210 96 92 300	Romania, Albania, Bulgaria, Macedonia	+40 (0) 729 164 387
Hungary	+36 (1) 382 60 60	Russia & CIS	+7 495 9804206
India	+91 120 247 1000	Saudi Arabia	+96 626444072
Indonesia	+62 21 385 9449	Singapore	+65 6270 0110
Iran (Vida)	+98 21 2271463	Slovak Republic, Croatia, Serbia, Bosnia, Montenegro, Slovenia	+421 (0) 903 447 757
(Panasonic Office)	+98 2188791102	South Africa	+27 11 3131622
Italy	+39 02 6788 367	Spain	+34 (93) 425 93 00
Jordan	+962 6 5859801	Sweden	+46 (8) 680 26 41
Kazakhstan	+7 727 298 0891	Syria	+963 11 2318422/4
Korea	+82 2 2106 6641		

Taiwan	+886 2 2227 6214
Thailand	+66 2 731 8888
Turkey	+90 216 578 3700
U.A.E. (for All Middle East)	
	+971 4 8862142
Ukraine	+380 44 4903437
U.K.	+44(0)1344 70 69 13
U.S.A.	+1 877 803 8492
Vietnam	+848 38370280



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Factories of AVC Networks Company have received ISO14001:2004-the Environmental Management System certification. (Except for 3rd party's peripherals.)