**BT-4LH310**

**A Reference Monitor Supporting 4K Image Production and 2K/HD Operation**

- Supports both 4K (4096 x 2160) and QFHD (3840 x 2160) resolution.
- LUT (look-up table) upload function.
- HDR (High Dynamic Range) compatibility.
- Compatibility with BT.2020 color space.
- Three types of 4K video input: 3G-SDI (4 lines or 2 lines), DisplayPort (2 lines or 1 line) and HDMI (2 lines or 1 line).

**BT-LH910G**

**High-Resolution Meets the Needs of Acquisition, OB Van Installation and Live Broadcasting.**

- WXGA (1280 x 768) resolution IPS panel.
- 15-pin viewfinder terminal can be used as a viewfinder for camera recorders.
- Various professional functions, including 3D*2 shooting assist.
- DC operation (Anton Bauer/DC IN).

*1: 3G-SDI supports 1080/50p, 1080/59.94p, and 1080/60p of the SMPTE ST 425-A standard.
*2: These functions assist 3D shooting with a 2D image display. The BT-LH910G does not display 3D images.

**BT-LH1770P**

**From the Studio to Live Broadcasting — High-Quality, Full-HD, 16.5-inch Model**

- High-contrast 1500:1, 10-bit display with high quality IPS LCD panel for Full-HD resolution.
- Equipped with convenient external USB Memory function for setting data and screen captures.
- CC (Closed Caption) data embedded in the SDI signal can be decoded and displayed.
- Functions such as adjustment assist, versatile display functions, and USB mouse operation.
- Network functions via a LAN connector.
- Mountable in a 19” rack. Optional stand and brackets are also available.


**BT-4LH310 Features of Picture Quality**

**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 ITU-R BT709, EBU and SMPTE-C.

**Compatibility with BT.2020 color space**
“ITU-2020 emu” is added to the color space selection menu. This mode enables an emulation display to support the wide color gamut of the ITU-R BT.2020 standard.

* The display color space of the BT-4LH310 does not completely comply with BT.2020. The BT-4LH310 shifts the color balance of the displayed image to correspond with the BT.2020 color gamut.

**HDR (High Dynamic Range) Support**
“HDR” is added to the gamma selection menu. The HDR mode provides a high dynamic range in compliance with SMPTE’s FOTF standard, ST 2084. This mode provides rich gradation to contrast, color and shadow in dark image areas that could not previously be reproduced due to blackout, thus resulting in more realistic image display.

* The peak brightness of the product is clipped at 450 cd/m² in the HDR mode. However, the displayable range can be varied by adjusting the contrast and brightness, so that the clipped high-brightness or low-brightness image sections can be checked.

**3D-LUT and 6-Axis 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 axes of the three primary colors (RGB) and their complementary colors (CMY). This helps to reproduce the intermediate shades of extremely fine colors.

**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 monitor utility software are required. For more information, visit the Panasonic website [http://pro-av.panasonic.net/].
BT-4LH310

General

Power Requirement: AC 100 V – 240 V, 50 Hz/60 Hz, 1.71 A
DC 28 V – 5.48 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:

758 mm (W) × 495 mm (H) × 258 mm (D) (including stand)

758 mm (W) × 474 mm (H) × 132 mm (D) (unit only, not including stand)

LCD Panel

Panel Size: 789 mm (31.1 inches) (effective display area)

Aspect Ratio: 17:9

Resolution: 4096 pixels × 2160 pixels

Display Colors: Approx. 1,000,000,000 colors

Viewing Angle: 178° both horizontal and vertical (contrast >10:1)

Connectors

SDI Input: BNC × 4, SMPTE ST424/425-1/274/296/372 compliant, embedded audio supported

3G-SDI: SMPTE ST299 compliant, 48 kHz, 16 CH, synchronous supported, HD SDI: SMPTE ST299 compliant, 48 kHz, 8 CH, synchronous supported

HDMI Input: HDMI × 2 (Type A), HDCP supported, embedded audio supported, VIERA Link not supported

DisplayPort Input: DisplayPort × 2, HDCP supported, embedded audio supported

SDI Output: BNC × 4, with active through-out

GPI: D-SUB, 9-pin

RS-232C: D-SUB, 9-pin

RS-485: RJ-45 × 2 (Input, Output)

Headphone Output: M3 stereo mini jack × 1, 32 Ω, Variable Level

Other Outputs

Speaker Output: 0.5 W, Monaural

Tally Output (display): Red, Green, Amber

Others

Supplied Accessories: Power cord, Stand, Stand screw, Protective panel screw

4K (3840 x 2160 Resolution) Video Inputs

<table>
<thead>
<tr>
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<th>YCbCr 4:2:2</th>
<th>YCbCr 4:4:4 / RGB 4:4:4</th>
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4K (4096 x 2160 Resolution) Video Inputs

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<tr>
<td>3G-SDI</td>
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</tr>
</tbody>
</table>

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

*1: The connection of dual link (3G Level B-DS) is possible.
Dimensions

- **LCD Monitor**
  - 474 mm (18-11/16 inches)
  - 368.064 mm (14-1/2 inches)
  - 200 mm (7-7/8 inches)
  - 213.5 mm (8-7/16 inches)
  - 225.5 mm (8-15/16 inches)
  - 147.5 mm (5-13/16 inches)

- **4K Camcorder**
  - 400 mm (15-3/4 inches)
  - 342 mm (13-1/2 inches)
  - 200 mm (7-7/8 inches)
  - 147.5 mm (5-13/16 inches)
  - 105 mm (4 inches)

- **HD Camcorder**
  - 238 mm (9-3/8 inches)
  - 213.5 mm (8-7/8 inches)
  - 150 mm (5-15/16 inches)
  - 147.5 mm (5-13/6 inches)
  - 105 mm (4 inches)

- **Cinema Camera**
  - 400 mm (15-3/4 inches)
  - 342 mm (13-1/2 inches)
  - 200 mm (7-7/8 inches)
  - 147.5 mm (5-13/6 inches)
  - 105 mm (4 inches)
BT-LH910G

**General**

- **Power Requirement:** DC 12 V (11.0 V – 17.0 V), 1.9 A (DC 12 V)
- **Operating Temperature:** 0 °C to 40 °C (32 °F to 104 °F)
- **Operating Humidity:** 10 % to 85 % (no condensation)
- **Storage Temperature:** –20 °C to 60 °C (–4 °F to 140 °F)
- **Weight:**
  - Approx. 2.4 kg (5.3 lbs) (including stand)
  - Approx. 1.7 kg (3.7 lbs) (unit only, not including stand)
- **Dimensions:**
  - 230 mm (W) x 214.5 mm (H) x 170 mm (D) (including stand)
  - 230 mm (W) x 183 mm (H) x 78.5 mm (D) (unit only, not including stand)

**LCD Panel**

- **Panel Size:** 230 mm (9 inches) of effective display area
- **Aspect Ratio:** 15:9
- **Resolution:** 1280 pixels x 768 pixels (WXGA)
- **Display Colors:** Approx. 16,770,000 colors
- **Viewing Angle:** 176° both of horizontal and vertical

**Connectors**

- **Video Input:** BNC x 1, (shares with analog component Y)
- **Analog Component (YPbPr/RGB) Input:**
  - BNC x 3, (Y shares with Video)
- **HDMI Input:**
  - HDMI x 1 (Type A), HDCP supported, embedded audio supported, VIERA Link not supported
- **SDI Input:**
  - BNC x 2, SMPTE274M/296M/259M-C/ITU-R BT.656-4 compliant, embedded audio supported
  - HD SDI: SMPTE299M compliant
  - SD SDI: SMPTE272M compliant
- **SDI Output:**
  - BNC x 2, active through-out
- **VF:**
  - D-SUB, 15-pin
- **GPI:**
  - D-SUB, 9-pin
- **RS-232C:**
  - D-SUB, 9-pin
- **Headphone Output:**
  - M3 stereo mini jack x 1, 32 Ω, Variable Level

**Others**

- **Supplied Accessories:**
  - Battery holder for Anton/Bauer battery (pre installed)

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**Supported Video Input Formats**

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</table>

✓: Supported  
*1: When a 1035/59.94i signal is input, images are displayed in 1080/59.94i. In that case, the displayed markers are for 1080/59.94i.  
*2: When 1035/60i signal is input, images are displayed in 1080/60i. In that case, the displayed markers are for 1080/60i.  
*3: 1080/25PsF input is displayed as 1080/50i.  
*4: 3G-SDI supports 1080/50p, 1080/59.94p, and 1080/60p of the SMPTE ST 425-A standard.  
*5: RGB444 and YCbCr422 (12 bit) are not supported.
■ Dimensions

3/8-16UNC → 1/4-20UNC
Can remove conversion adapter

AW-PS550N*
AC Adaptor

AW-PS551*
AC Adaptor

BT-CS910G
VF Cable

■ Optional Accessories for BT-LH910G

* Not available in some areas.
BT-LH1770P

**General**

- **Power Supply:**
  - AC 100 V—120 V, 50 Hz/60 Hz
  - AC 200 V—240 V, 50 Hz/60 Hz
  - DC 12V (10.5 V—18 V)

- **Power Consumption:**
  - AC Input: 40 W
  - DC (12V) Input: 36 W

- **Operating Temperature:** 0 °C to 40 °C (32 °F to 104 °F)

- **Operating Humidity:** 20 % to 85 % (no condensation)

- **Storage Temperature:** –20 °C to 60 °C (–4 °F to 140 °F)

- **Storage Humidity:** 5 % to 85 % (no condensation)

- **Weight:** Approx. 5.8 kg (12.8 lbs) (unit only, not including stand)

- **Dimensions:** 428 mm (W) x 301 mm (H) x 80 mm (D) (16-7/8 inches x 11-7/8 inches x 3-1/8 inches) (unit only, not including stand)

**LCD Panel**

- **Panel Size:** 42 cm (16.5 V inches) of effective display area

- **Aspect Ratio:** 16:9

- **Resolution:** 1920 dots x 1080 dots

- **Display Colors:** 1000.7 million colors

- **Viewing Angle:** 178° both of horizontal and vertical

**Connectors**

- **Video (VBS) Input:** BNC x 1 (loop-through), analog composite (NTSC/PAL-B) signal

- **SDI Input:** BNC x 2 (3G-SDI/HD SDI/SD SDI), embedded audio supported

- **HDMI Input:** HDMI x 1, HDCP supported, embedded audio supported

- **SDI Output:** BNC x 2*, active through-out

- **Analog Audio Input:** Ø3.5 stereo mini jack, 0 dSV max (0 dBV=1 Vrms)

- **Headphone Output:** Ø3.5 stereo mini jack type, 85 mW/ch (RL: 32 Ω)

**Other Output**

- **Speaker Output:** 1W or more

**Others**

- **Supplied Accessories:** Operation Manual, Parallel remote connector, AC power cord, Monitor stand, Screw for monitor stand

*The two outputs can be used as two inputs depending on the setting.

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### Supported Video Input Formats

<table>
<thead>
<tr>
<th>Input Signal</th>
<th>VIDEO</th>
<th>SDI</th>
<th>HDMI</th>
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<td>✔*7</td>
</tr>
<tr>
<td>1080/60p</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>

* ✔: Supported
* *: Not all frequencies are supported.
* 1: When 1035/59.94i signal is input, images are displayed in 1080/59.94i. In that case, the displayed markers are for 1080/59.94i.
* 2: When 1035/60i signal is input, images are displayed in 1080/60i. In that case, the displayed markers are for 1080/60i.
* 3: When SDI is input at 1080/23.98PsF signal, status display shows as 1080/48i. When SDI is input at 1080/24PsF signal, status display shows as 1080/48i.
* 4: When HDSDI is input at 1080/25PsF signal, status display shows as 1080/50i.
* 5: When 1080/29.97PsF signal is input, status display shows as 1080/50i.
* 6: When SDI is input at 1080/29.97PsF signal, status display shows as 1080/60i.
* 7: When HDMI is input at 1080/23.98p signal, status display shows as 60i/p.
* 8: When HDMI is input at 29.97p signal, status display shows as 30p.
* 9: When HDMI is input at 23.98p signal, status display shows as 24p.

### Supported PC Input Signal

<table>
<thead>
<tr>
<th>Input Signal</th>
<th>HDMI Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>VGA (640 x 480)</td>
<td>✔</td>
</tr>
<tr>
<td>SVGA (800 x 600)</td>
<td>✔</td>
</tr>
<tr>
<td>XGA (1024 x 768)</td>
<td>✔</td>
</tr>
<tr>
<td>WXGA (1280 x 768)</td>
<td>✔</td>
</tr>
<tr>
<td>SXGA (1280 x 1024)</td>
<td>✔</td>
</tr>
<tr>
<td>UXGA (1600 x 1200)</td>
<td>✔</td>
</tr>
<tr>
<td>WUXGA (1920 x 1200)</td>
<td>✔</td>
</tr>
</tbody>
</table>

* ✔: Supported
* *: Not all frequencies are supported.
■ Optional Accessories for BT-LH1770P (US Only Model)

- **BT-MA1772G**  
  Tilt Stand

- **BT-MA1773G**  
  Rack Mount Bracket

- **BT-MA1774G**  
  Rack Mount Bracket  
  (with Tilt Function)