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26"Wide HD/SD LCD Monitor

BT-LH2600W

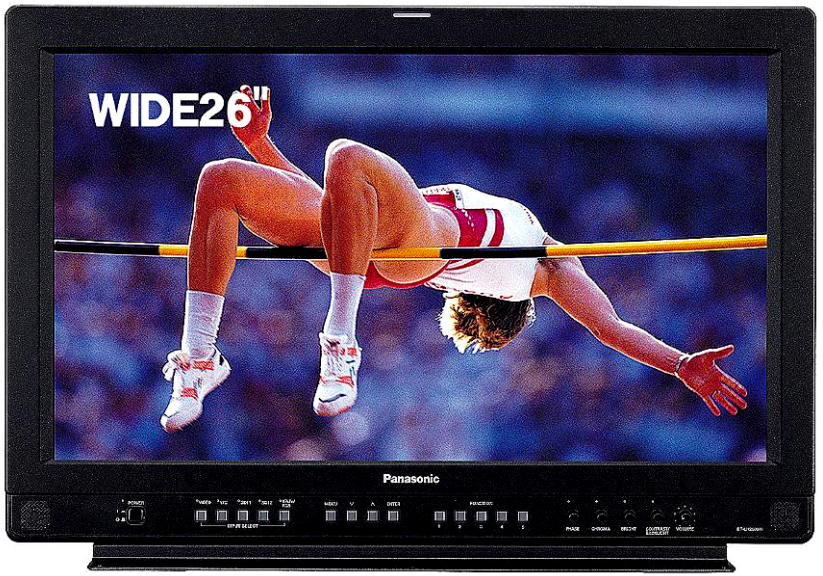
Presentation

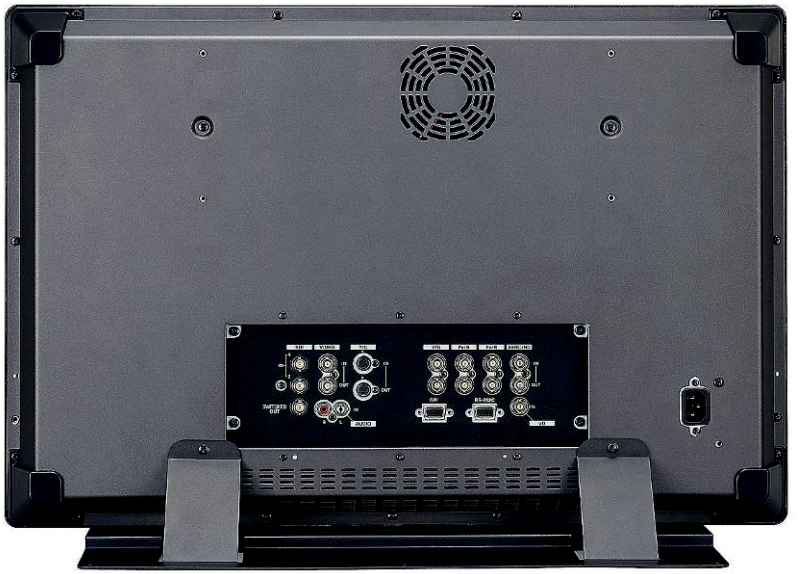
Matsushita Electric Industrial Co., Ltd.
System AV Business Unit

June, 2006

CONTENTS

26” Widescreen HD/SD LCD Monitor with High Speed Response, Super Fast Image Processing and Built-In SDI/HD SDI Compatibility.





26”Wide HD/SD LCD Video Monitor **BT-LH2600W**

WXGA 1366x768 | HD/SD Multi-format | SDI (Automatic HD/SD switching) | Embedded Audio | Y/Pb/Pr input | RGB (PC Input compatible) | Waveform monitoring | Varicam Cine Gamma Compen-sation | Split Screen | Built-in Speakers | Audio Level Meter | Pixel To Pixel | True 16:9

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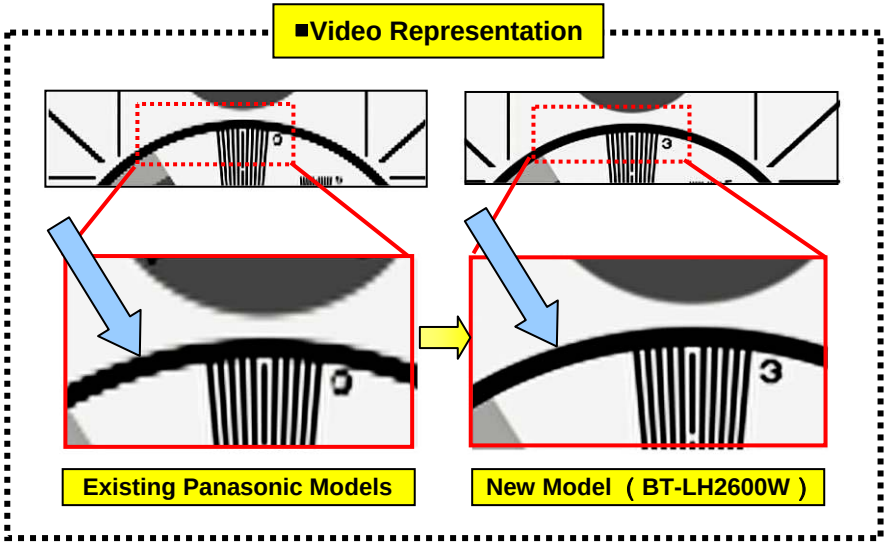
Main Features of BT-LH2600W (1/3)

1 New IP Converter Circuit for Unmatched Short Delay

Equipped with an I/P conversion algorithm that converts SD and HD interlace signals with high precision and generates a progressive signal without causing field-length delay. The delay time between the input signal and the monitor is minimized, allowing the user to confirm the video without any discomfort. →Details explained on page 5.

2 Diagonal Line Compensation Processing Circuit

Prevents resolution deterioration in the vertical direction particularly for an SD signal expanded and displayed on a high resolution LCD panel. For jagged noise on diagonal lines as well, which had been a problem with moving images, high precision, smooth display characteristics are realized by detecting correlations in the diagonal direction.
→Details explained on page 6.

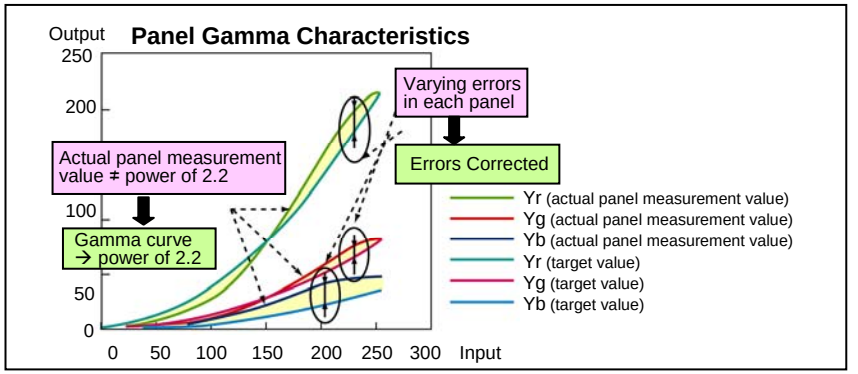


3 High-Speed Response

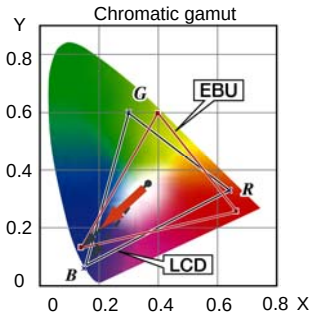
Response in intermediate gradations improved to around half of the time of existing Panasonic models, enabling the clear reproduction of video without blurring. →Details explained on page 6.

4 Broadcast Quality Gradation, Compensation for Each Monitor

- In order to make the LCD monitor suitable for professional broadcasting applications, compensation is conducted for each monitor in 256 discrete RGB steps, rated gamma properties (g=2.2) are reproduced, and gradation suitable for broadcasting is achieved.
- gamma curve can be selected with the 3 modes.
  <STANDARD> : Standard mode. <FILM> : FILM mode
  <STDIO/PST> : Color emphasis mode
- Color temperature of 9300K/6500K/5600K; 3000-9300K can be selected with the variable setting.



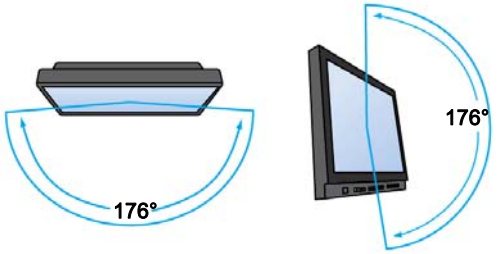
5 Color Gamut



Colors on CRT monitors appear different from those on LCD monitors due to slight differences in the monitors' chromatic ranges.
BT-LH2600W uses a technology called color space conversion to produce the same EBU-based colors as a CRT.
Non-primary colors are created with mixtures of primary colors, so by using color space conversion technology, mixture ratio coefficients for each RGB primary color are changed and the colors are reproduced in EBU phosphor.
North American model is set to SMPTE-C Standard same as CRT monitor.

Main Features of BT-LH2600W (2/3)

6 Wide 176° Horizontal and Vertical Viewing Angle



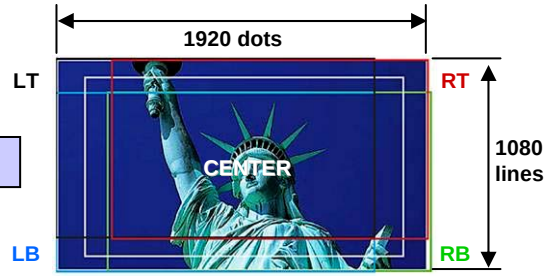
A 176° horizontal and vertical viewing angle has been realized by using a high intensity, high contrast LCD panel (IPS Technology). Ease of viewing is secured by reducing changes in color due to the viewing angle.

7 Pixel-to-Pixel

This function allows you to display and confirm video pixels inputted in HD-SDI without any resizing.
When using 1080i, choose from LT/RT/LB/RB/CENTER for the display area. In 720p, it is displayed in the actual size.
→Details explained on page 7.

1080i

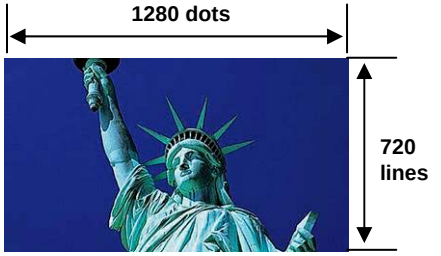
HD Signal Input(1080i)



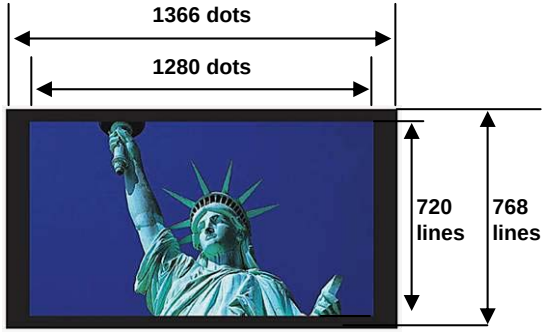
Shown in the panel

720p

HD Signal Input(720p)

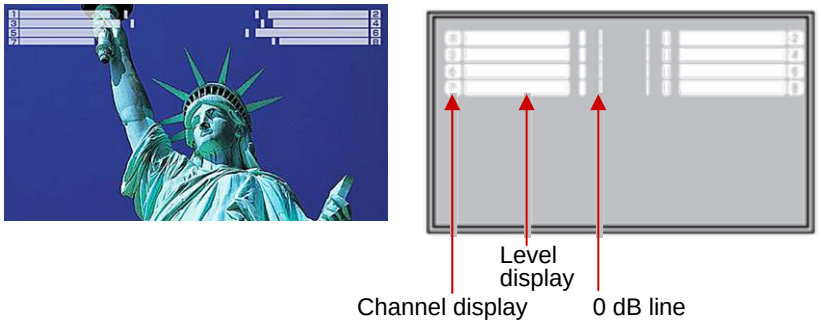


Shown in the panel



8 Audio Level Meter

The BT-LH2600W comes with an audio embedded function. In addition, the SDI-input audio level can be displayed on the screen with a white skeleton bar meter.
Choose from 2ch/4ch/8ch/off for the display.



Main Features of BT-LH2600W (3/3)

9 Coordination of Multiple Cameras on Split Screens

A frame of video can easily be frozen and displayed as a still image on the left side of the screen. This function can be utilized to match a live camera with a frame of video shot at an earlier time or with a different camera. There are two display modes: FULL for displaying and comparing the entire image on the screen and PART for displaying and comparing only the center part of the images.

→Details explained on page 8.

■ **FULL – Full Screen Display**

Freeze frame display Video

■ **PART – Center Screen Display**

Freeze frame display Video

10 Waveform Monitoring

The input signal is displayed as a waveform for monitoring. Display of the waveform can be positioned in any of the four corners of the screen.

Waveform monitoring screen : Easily display the wave form of the inputted video signal.

11 Various Markers

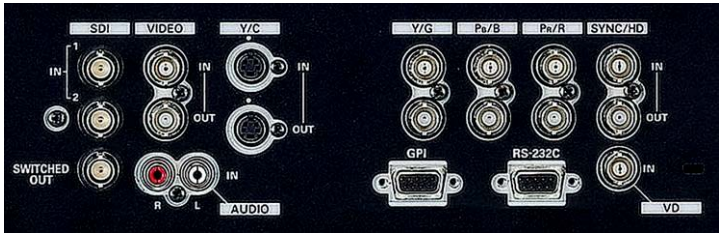
Various markers can be displayed In 16:9 mode and 4:3 mode.

→Details explained on page 9.

Display in 16:9 Mode	Aspect Marker	: 4:3,13:9,14:9,CNSCO,VISTA
	Area Marker	:<16:9> 95%,93%,90%,88%,80% :<4:3> 95%,93%,90%,88%,80%
	Center Marker	: ON/OFF
	Background Brightness	: BLACK(0%),HALF(50%) NORMAL(100%)
Display in 4:3 Mode	Area Marker	: 95%,93%,90%,88%,80%
	Center Marker	: ON/OFF

12 2 SDI Inputs, PC Input Compatible

Compatible with multiple HD and SD formats. Two SDI input with automatic switching between HD and SD comes standard. Also equipped with one SDI output, a Component input (Y/Pb/Pr , RGB switching), Y/C and Composite. RGB is compatible with PC input.



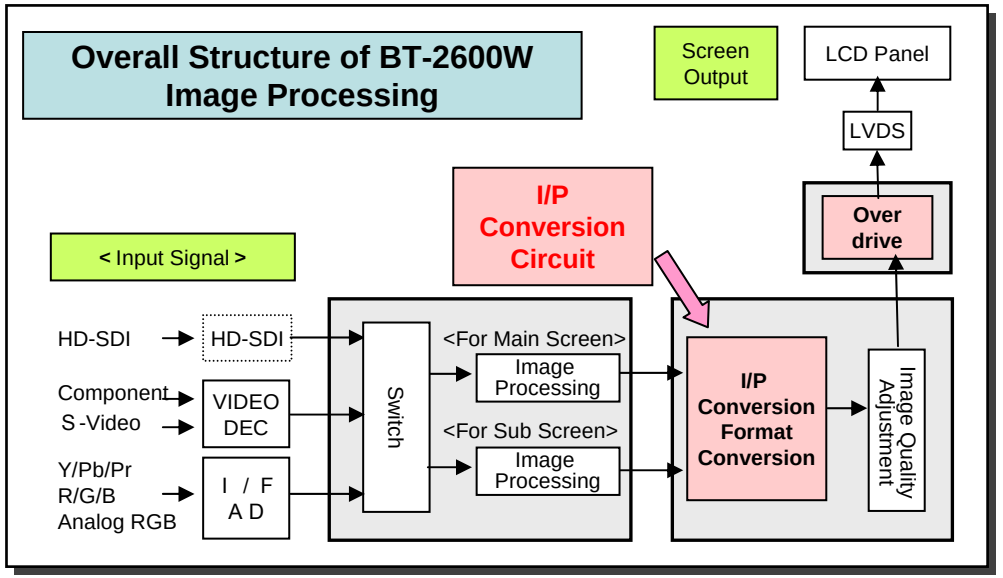
13 Equipped with Functions for Broadcasting and Professional Use

- Equipped with cine-gamma (F-REC) compensation function for compatibility as a monitor for VariCam HD Camcorder.
- RS-232C external control possible. External remote control with GPI terminals also possible.
- Tally lamp (red, green). ●Built-in stereo speakers.
- Blue only mode. ●H/V delay. ●Mono mode.
- Fan On/Off Menu Selectable.

New IP Converter Circuit for Unmatched Short Delay

- There was strong demand for making the delay time from input of the video signal to output on the screen less than one field, so conventional models responded with I/P conversion processing within a field.
- For BT-LH2600W, in order to further raise quality, a new I/P conversion algorithm was developed and incorporated into the model. It converts SD and HD interlace signals with high precision, generating a progressive signal without causing even field-length delay.
- Conventional I/P conversion made one field previous the display field and conducted dynamic and static judgments with interpolation pixels and inter-frame data for two fields previous in the same position and the current field, so delay time was one field or greater.
- Compared to this, with the new I/P conversion method, high precision processing was achieved along with a circuit delay time (excluding the panel)) of approximately 5 msec*1 by developing a new algorithm. The delay time between the input signal and monitor output is held to a minimum so footage can be checked without any sense of incongruity.

*1. Differs slightly depending on the input format



About Interlace/Progressive(I/P) Conversion

Field Correlation: Conversion to progressive video using data from preceding and following fields (inter-frame)

Video delay of around one field occurs from within the field

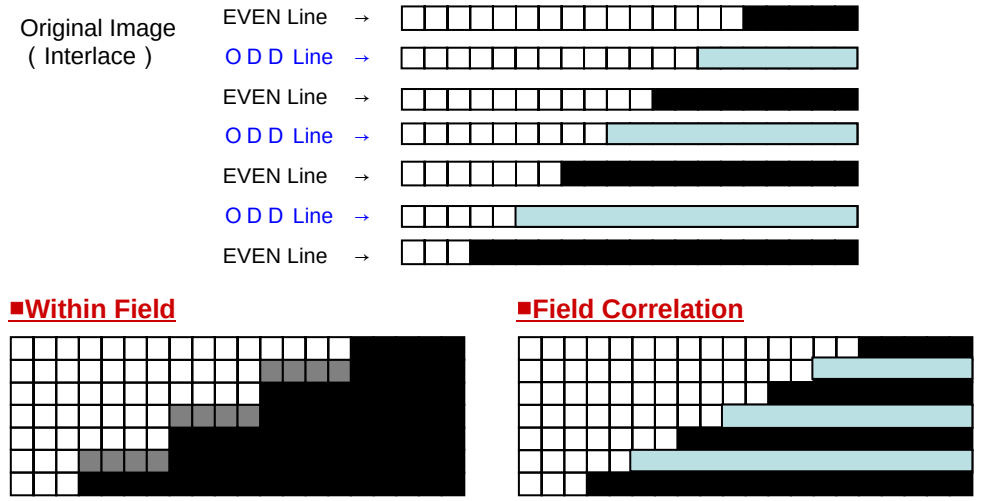
Within Field: Intra-frame interpolation is used to convert to progressive video

Images are obtained without blurring or flickering and without incurring field-length delay.

Development and incorporation of new I/P conversion algorithm
1) Eliminates field-length delay caused by conventional I/P conversion
2) Approximately 5 msec processing time from signal input to screen output thanks to implementation of new algorithm
(1080/60i, 720/60P, 480/60i, 576/50i with using standard settings for screen size)

Note: I/P refers to interlace/progressive conversion. It is not an abbreviation for image processing.

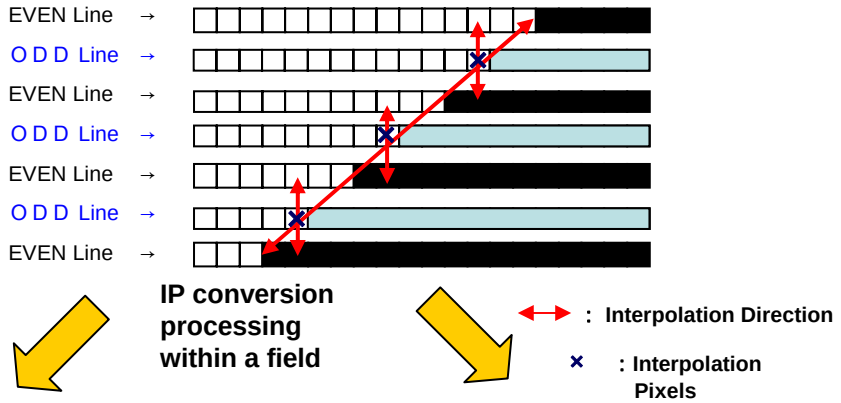
IP Conversion Conceptual Diagram



Diagonal Line Compensation Processing Circuit, High-Speed Response

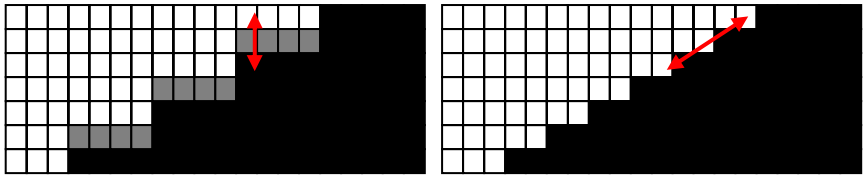
Diagonal Line Compensation Processing Circuit

- The new I/P conversion method uses diagonal line compensation processing that prevents image degradation when processing video.
- Correlations are detected not only in the vertical direction within the field but also in the diagonal direction. Optimal interpolation is then conducted, which limits the occurrence of jaggedness and noise in the diagonal direction.
- This processing curtails diagonal line jaggedness that is particularly conspicuous when an SD signal is expanded and displayed on a high resolution LCD panel. And high precision, smooth display characteristics are realized



■Conventional Method (Vertical Interpolation)

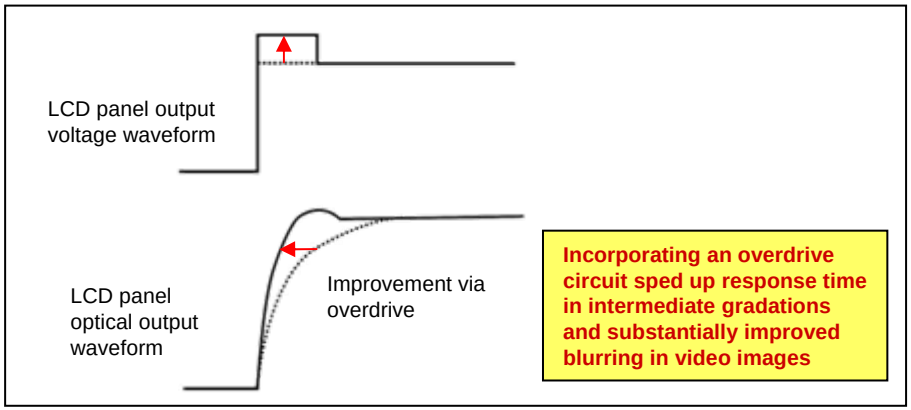
■New Method (Diagonal Interpolation)



New I/P conversion method uses diagonal compensation processing to prevent image degradation when processing video. Diagonal line jaggedness is reduced and high precision, smooth display characteristics are realized.

High-Speed Response

- The biggest concern with respect to response time is in the intermediate gradations. Installing a new overdrive circuit has sped up response time in the intermediate gradations and substantially improved blurring in video images. blurring in video images.
- Overdrive technology shortens response time in intermediate gradations by temporarily converting the signal level that is output to the LCD panel to a high level (or low level). The response time in intermediate gradations can be further improved by making the signal level that is temporarily changed large, but overshoot/undershoot becomes visible, which is not acceptable for a broadcasting monitor.
- For this reason, detailed evaluations and verifications were conducted to determine the drive amount. With gray-to-gray measurement, approximately 8 ms was achieved and response speed was improved to around half or better of existing Panasonic models.



High Performance Resolution Conversion Filter

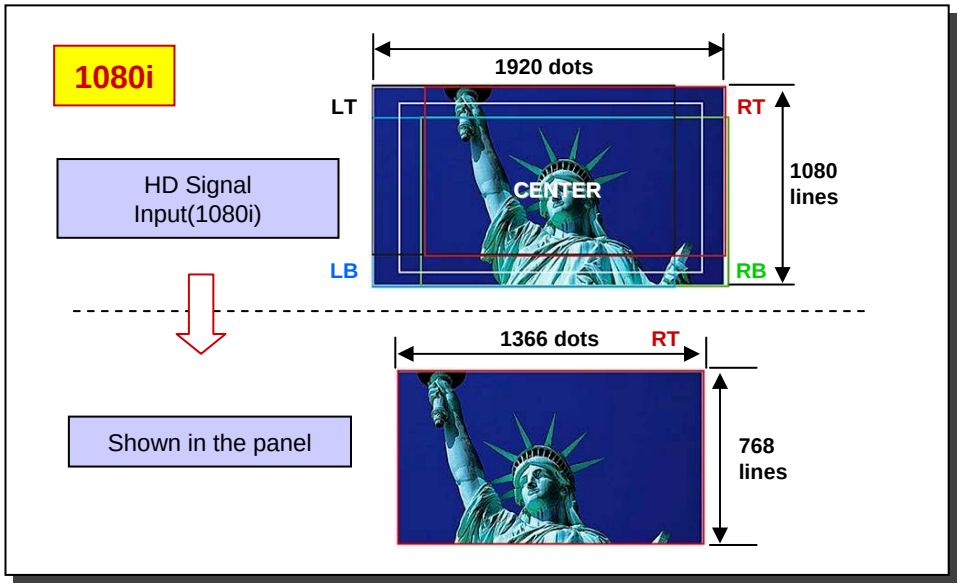
Compared to conventional horizontal resolution conversion filters, an even higher performance filter was used. By improving frequency characteristics in effective bands and curbing gains in non-effective bands, video image degradation from aliasing is curtailed without reducing resolution and the video is faithfully reproduced.

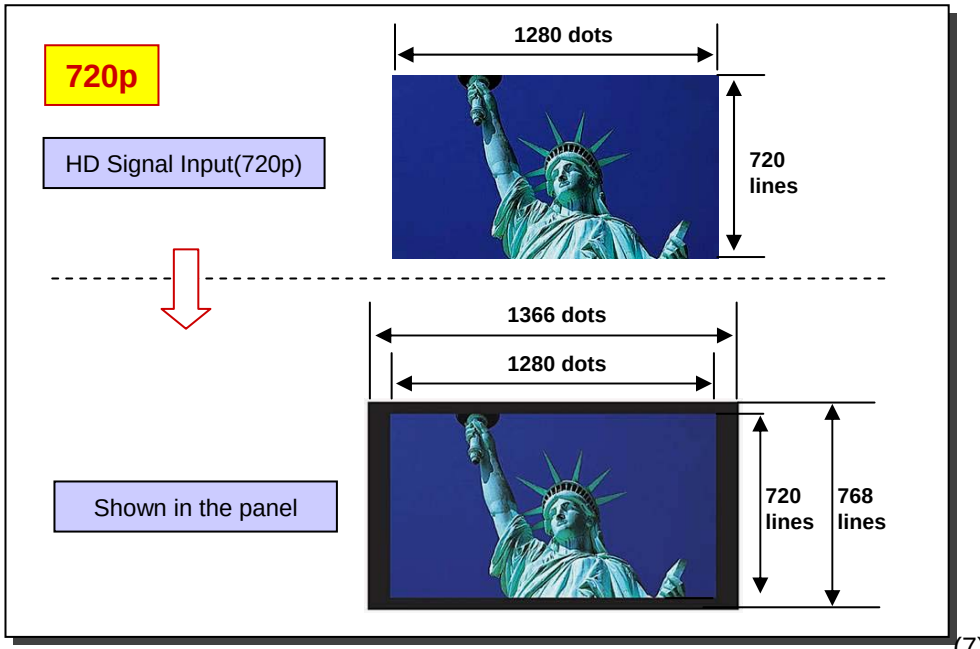
PIXEL TO PIXEL Function

About PIXEL TO PIXEL and PIXEL POS.

You can confirm a picture with the actual pixel count (only when the input is an HD signal).

Sub menu	Settings	Explanation
PIXEL TO PIXEL	<OFF> <ON>	Used to set the input signal size as the display size. • Compatible formats 1080/60i/59i/50i/30P/29P/25P/24P/23P/ 24PsF/23PsF、 720/60P/59P/50P(SDI/YPbPr)
PIXEL POS.	＜CENTER> <LEFT TOP> <RIGHT TOP> <RIGHT BOTTOM> <LEFT BOTTOM>	Used to set the signal display position when PIXEL MAPPING is on. <CENTER> center <LT> top left <RT> top right <RB> bottom right <LB> bottom left





Split Screen Function

●Until now, aligning images from cameras was done by using two monitors, sending the feeds from the cameras to each monitor, then adjusting the settings. However, due to gaps between the monitors, it was quite troublesome to align the monitors perfectly.

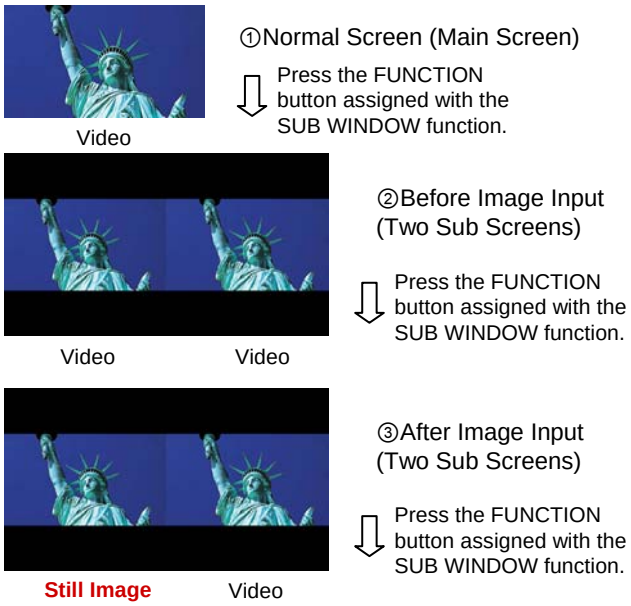
●With BT-LH2600W, one camera image is input as a still image, then the image from the other camera is displayed, allowing adjustments to be made against the still image. This function greatly facilitates adjustments between cameras.

About Split Screen

●When using the Split Screen function, the normal screen (main screen) is split and two screens (two sub screens) are displayed as shown below. The recorded still image and video can be compared and waveforms can be displayed.
●By setting [SUB WINDOW] (FULL, PART, WFM) on the [SYSTEM CONFIG] menu, screens can be switched as described below.
●The screen switches every time [FUNCTION1] to [FUNCTION5], which are assigned to the sub window function, are pressed.

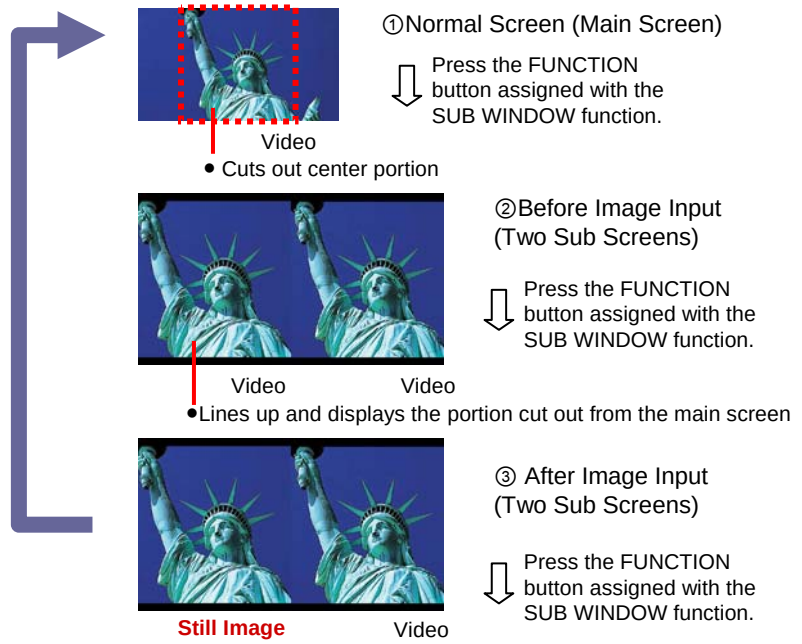
FULL

Reduces the size of the main screen without alteration and turn it into two screens (two sub screens).



PART

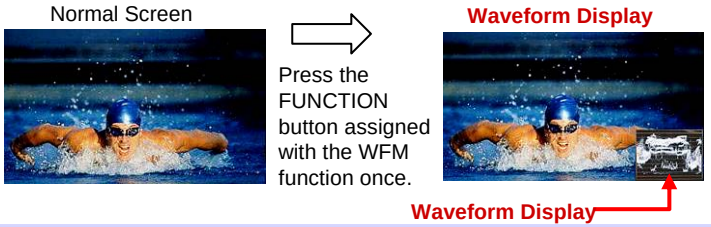
Cuts out only the size of the sub screen from the main screen and makes it two screens (two sub screens).



■Caution on FULL/PART Selection
This is a function to compare screens from the same input terminal in the same format. When displaying screens with differing input formats and differing input channels, the sub screens (left side, still image) will be distorted or blanking will occur, but if the same format signal is inputted into the input terminal when acquiring the still image, the screens will display correctly.

WFM

Displays the waveform display screen.



●Waveform of input video signal straightforwardly displayed.
●Display can be positioned in any of the four corners.

Various Markers

16:9 Marker (With HD Signal, Displays 16:9 Aspect with SD Signal)

- Vertical bars are not displayed with this marker.
- ▭ is the [MARKER BACK] item.
- [MARKER BACK] item: BLACK (0%), HALF (50%), NORMAL (100%)

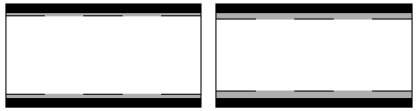
①Aspect Markers

■**4 : 3, 13 : 9, 14 : 9 Markers**

4 : 3 Marker　13 : 9 Marker　14 : 9 Marker

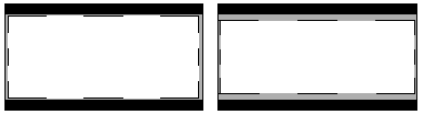
■**VISTA Marker, CNSCO Marker**

Horizontal dotted lines are displayed as markers.



VISTA Marker　CNSCO Marker

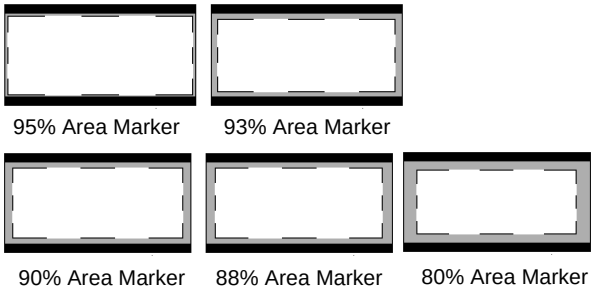
When [SCAN] on the menu screen is set to [UNDER], vertical lines are displayed as markers.



VISTA Marker　CNSCO Marker

②Area Markers

Dotted lines are displayed as markers.



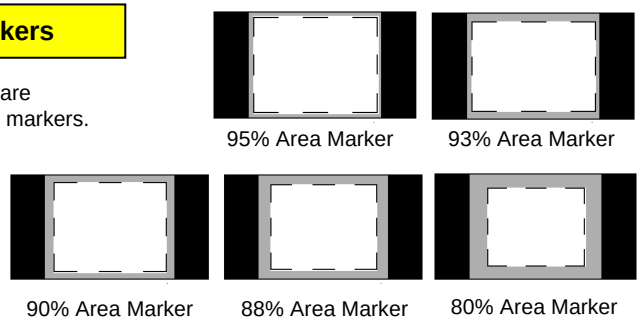
95% Area Marker　93% Area Marker

90% Area Marker　88% Area Marker　80% Area Marker

4:3 Marker (Display of 4:3 Aspect with SD Signal)

①Area Markers

Dotted lines are displayed as markers.



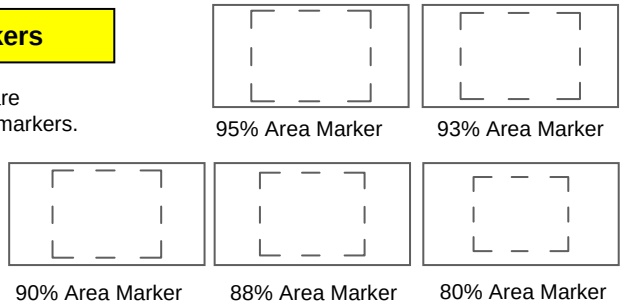
95% Area Marker　93% Area Marker

90% Area Marker　88% Area Marker　80% Area Marker

4:3 Marker (With HD Signal, Displays 16:9 Aspect with SD Signal)

①Area Markers

Dotted lines are displayed as markers.

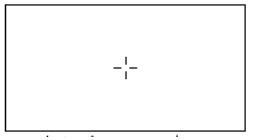


95% Area Marker　93% Area Marker

90% Area Marker　88% Area Marker　80% Area Marker

Center Marker

Displayed in the center of the screen.

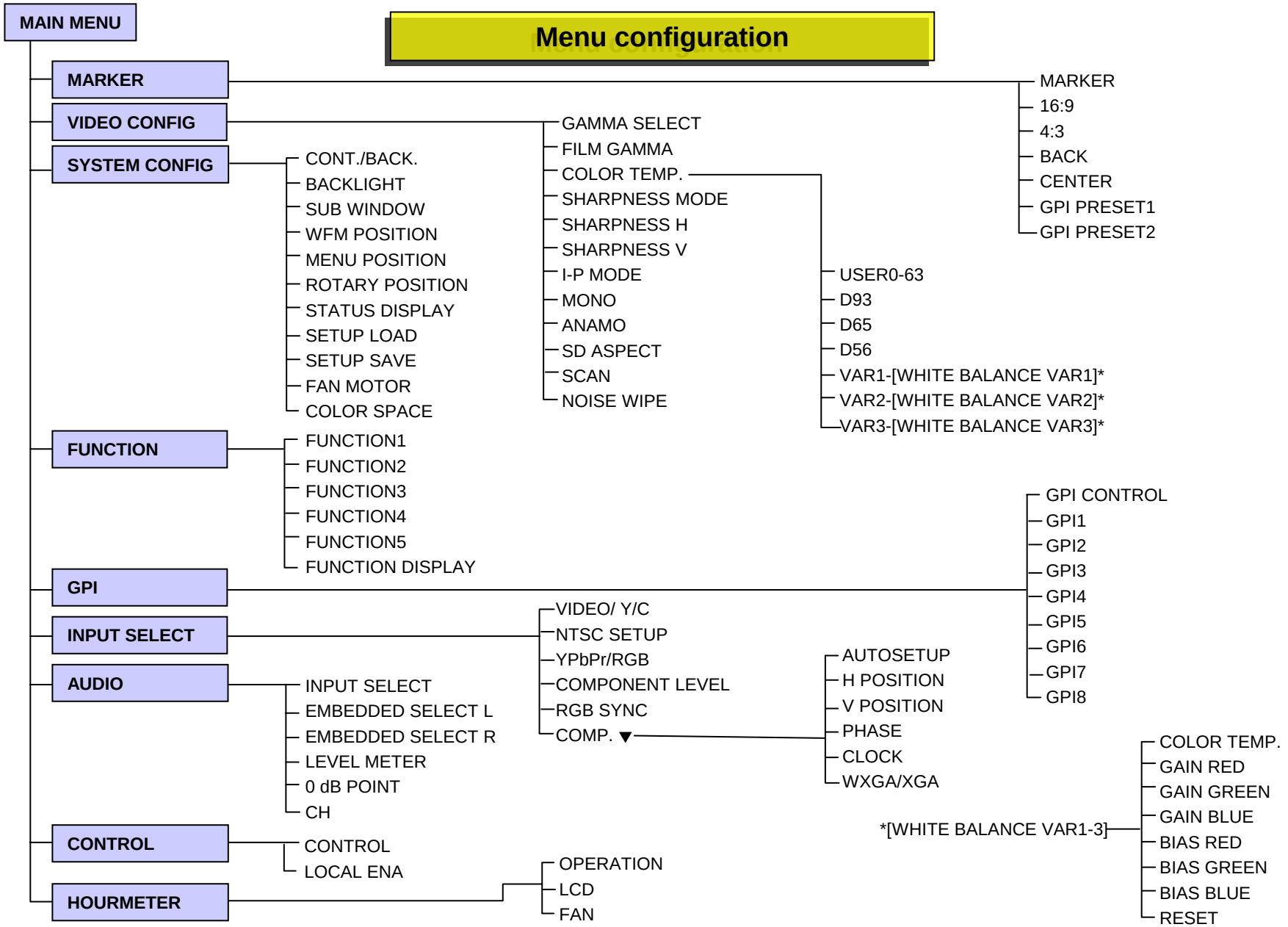


Center Marker

- Sample display of area markers and center marker in 4:3 mode.

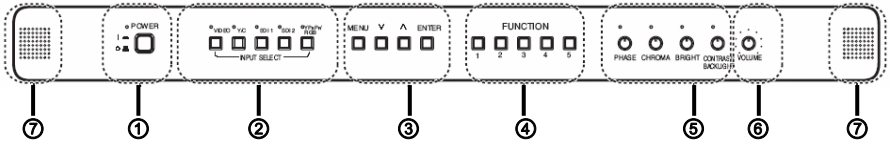
On Screen Menu

Menu configuration



Controls and Their Functions

Front panel



① POWER switch

② INPUT SELECT button

VIDEO, Y/C, SDI1 , SDI2 , YPBPR/RGB

* When using PC Input, select “RGB-COMP.” from “YPBPR/RGB” in the “INPUT SELECT” Menu.

③ MENU button

This is used for menu display, selecting settings, and adjustments.

④ FUNCTION button

FUNCTION 1 ~ FUNCTION 5 : Carries out the item selected in the menu.

⑤ Picture adjusting knob

PHASE, CHROMA, BRIGHT, CONTRAST

When values are changed from the factory preset values, the LED above the knob (amber) lights.

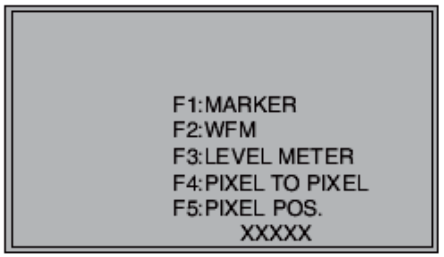
⑥ Volume knob

You can adjust the speaker volume by rotating the volume knob.

⑦ Speaker

Audio input from the AUDIO input terminal or SDI terminal (embedded audio) can be heard.

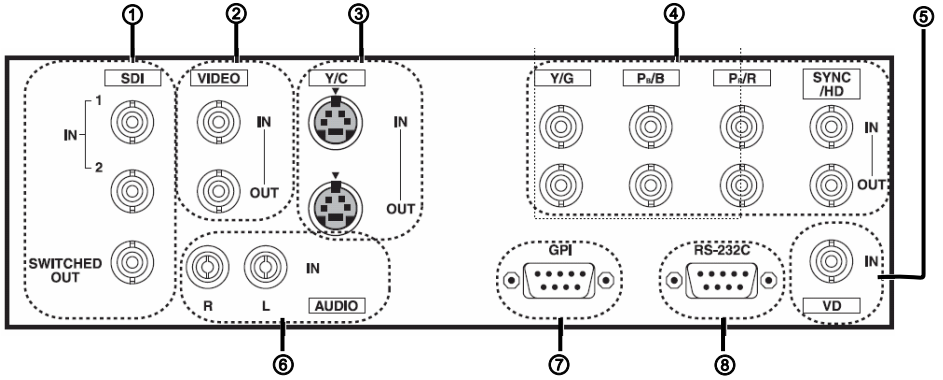
■ The functions assigned to [FUNCTION1] to [FUNCTION5]



Following functions can be selected to assign onto [FUNCTION1] to [FUNCTION5]

- HV DELAY
- AUTOSETUP
- BLUE ONLY
- GAMMA SELECT
- SD ASPECT
- SCAN
- SUB WINDOW
- WFM
- MARKER
- PIXEL TO PIXEL
- PIXEL POS.
- LEVEL METER
- MONO
- UNDEF

Rear panel



① SDI (HD/SD) terminal (BNC)

IN1 / IN2 : This is the SDI input terminal (compatible with HD/SD automatic switching).

SWITCHED OUT : This is the active through-out terminal for the SDI input signal being displayed on the screen.

② VIDEO terminal (BNC)

IN : This is the VIDEO signal (composite signal) input terminal.

OUT : This is the input signal through-out terminal.

③ Y/C terminal

IN : This is the Y/C signal (S-video signal) input terminal.

OUT : This is the input signal through-out terminal.

④ YPBPR/RGB terminal (BNC)

IN : This is the YPBPR/RGB signal input terminal.

OUT : This is the input signal through-out terminal.

* When using the RGB signal, you can also connect the external synchronizing signal to the SYNC/HD terminal. When using a PC RGB signal, connect the horizontal synchronizing signal to the SYNC/HD terminal, and the vertical synchronizing signal to the VD terminal.

⑤ VD IN input terminal

This is the vertical synchronizing signal (VD) input terminal used when connecting to a PC RGB signal.

⑥ AUDIO input terminal (Pin terminal)

This is the common audio input terminal for all video input terminals.

⑦ GPI input terminal (D-SUB 9-pin)

External control is possible by using a GPI signal.

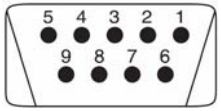
⑧ RS232C input terminal (D-SUB 9-pin)

External control is possible by using a RS232C signal.

GPI Terminal

① Each of the items in the GPI screen are compatible with the following terminals.
② You can assign functions to each terminal in the menu GPI screen.
③ The functions assigned to each terminal operate when the GND (5 Pin) is connected (ON) or open (OFF).

GPI Terminal (D-SUB9P)　　RS-232C Terminal (D-SUB9P)



Pin No.	Signal
1	GPI1
2	GPI2
3	GPI3
4	GPI4
5	GND
6	GPI5
7	GPI6
8	GPI7
9	GPI8

■Operating conditions

Level operation: operates when GND is connected.
Edge operation: operates when GND changes from open to connected.

* If you have assigned a level operation function to more than one terminal, the function operates as long as one of the terminals is connected.

*1 When the 16:9 marker and 4:3 marker are simultaneously selected and activated on the 16:9 aspect display, they create an overlap.
*2 When markers overlap, the background selected with the 16:9 marker is controlled.
*3 When both “R-TALLY” and “G-TALLY” are ON at the same time, the tally color becomes orange.
*4 This is only enabled when “RGB-VIDEO” is selected in “YPBPR/RGB” in the “INPUT SELECT” menu.

■ **Assignment of item priority levels**

•When both “MARKER1” and “MARKER2” are ON at the same time, “MARKER1” has priority. However, when the display aspect is 4:3, the “MARKER1” aspect is 16:9, and the “MARKER2” aspect is 4:3, “MARKER2” is displayed. In this case, the “MARKER2” background is controlled.
•When “MARKER BACK HALF” and “MARKER BACK BLACK” are simultaneously activated, priority goes to “MARKER BACK BLACK”.
•When two or more of the following items - “INPUT SEL. VIDEO”, “INPUT SEL. Y/C”, “INPUT SEL SDI1”, “INPUT SEL. SDI2” and “INPUT SEL. YPbPr/RGB” - are simultaneously activated, priority goes to the last item activated.
•When “GAMMA SEL. FILM” and “GAMMA SEL. STDIO/PST” are simultaneously activated, priority goes to “GAMMA SEL. FILM”.

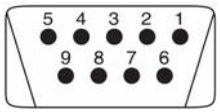
Assignment items & Function

Assignment items	Function	Operating conditions
UNDEF	No settings (no terminal assignment functions)	—
MARKER1 ON/OFF*1	Switches the marker display of the marker decided in “GPI PRESET1” in the “MARKER” menu.	Level operation (Connected: ON, Open: OFF)
MARKER2 ON/OFF*1	Switches the marker display of the marker decided in “GPI PRESET2” in the “MARKER” menu.	Level operation (Connected: ON, Open: OFF)
MARKER BACKHALF*2	Reduces the brightness of the background outside the marker displayed in “GPI PRESET1” by 50%.	Level operation (Connected: ON, Open: OFF)
MARKER BACKBLACK*2	Reduces the brightness of the background outside the marker displayed in “GPI PRESET1” to 0%.	Level operation (Connected: ON, Open: OFF)
CENTER MARKER	Switches the center marker display ON/OFF. (When other markers are being displayed, this is superimposed on the other markers)	Level operation (Connected: ON, Open: OFF)
INPUT SEL. VIDEO	Switches the input system to VIDEO. Edge operation	Edge operation
INPUT SEL. Y/C	Switches the input system to Y/C. Edge operation	Edge operation
INPUT SEL. SDI1	Switches the input system to SDI1. Edge operation	Edge operation
INPUT SEL. SDI2	Switches the input system to SDI2. Edge operation	Edge operation
INPUT SEL. YPbPr/RGB	Switches the input system to YPbPr/RGB.	Edge operation
SD ASPECT	Sets the aspect ratio settings when using SD signal input. (Disabled when using HD signal and PC signal)	Level operation (Connected: 16:9, Open: 4:3)
SCAN	You can switch the scan mode between “UNDER” and “NORMAL”. (Disabled when using PC signal)	Level operation (Connected: UNDER, Open: NORMAL)
R-TALLY*3	Lights the red tally.	Level operation (Connected: ON, Open: OFF)
G-TALLY*3	Lights the green tally.	Level operation (Connected: ON, Open: OFF)
MONO	Switches between color and monochrome (MONO). (Disabled when using PC signal)	Level operation (Connected Monochrome, Open: Color)
GAMMA SELE. FILM	Used to switch the gamma characteristic to the FILM mode.	Level operation (Connected: FILM mode, Open: STANDARD mode)
GAMMA SELE. STDIO/PST	Used to switch the gamma characteristic to the STDIO/PST mode.	Level operation (Connected: STDIO/ PST mode, Open: STANDARD mode)
RGB SYNC*4	Selects the SYNC when using RGB-VIDEO input.	Level operation (Connected: EXT, Open: G-ON)

RS-232C Terminal (1/2)

① Refer to the following diagram and lower right table for the RS-232C terminal pin arrangement and connections.

PC Side			BT-LH2600W Side	
Pin No.	Signal	(Straight)	Pin No.	Signal
1	N.C.		1	N.C.
2	RXD	←	2	TXD
3	TXD	→	3	RXD
4	DTR	→	4	DSR
5	GND		5	GND
6	DSR	←	6	DTR
7	RTS	→	7	CTS
8	CTS	←	8	RTS
9	N.C.		9	N.C.



RS-232CI Terminal
(D-SUB9P)

RS-232C Remote operation method

■Connectors and signal names

Pin No.	Signal names	Explanation
1	N.C	Not connected.
2	TXD	Transmission data
3	RXD	Reception data
4	DSR	Connected inside
5	GND	Ground
6	DTR	Connected inside
7	CTS	Connected inside
8	RTS	Connected inside
9	N.C.	Not connected

■Communication Conditions

Signal level	Conforms to RS-232C
Synchro system	Tone pace synchro system
Transfer rate	9600 bps
Parity	None
Data length	8 bit
Stop bit	1 bit
Flow control	None

■Command format

STX(02h)	Command	:	Data	ETX(03h)

- Commands are 3 characters following STX, finally adding ETX.
- Add a : (colon) after the command as required, and add the data.

■Response formats

1.Setting command response

STX(02h)	Command	ETX(03h)

2.Query command response

STX(02h)	Data	ETX(03h)

3.Error response

STX(02h)	Error code	ETX(03h)

Error code
ER001: Invalid command
ER002: Parameter error

Setting command

No	Command	Explanation	Data Response	
1	IIS	Input switch	0: SDI1 1: SDI2 2: VIDEO 3: YPBPR/RGB 4: Y/C	IIS
2	VPC	Image quality adjustment	CON00-60 : Contrast settings BRI00-60 : Brightness settings CRO00-60 : Chroma settings PHA00-60 : Phase settings	VPC
3	OBO	Blue only	0: OFF 1: ON	OBO
4	OHV	HV Delay	0: OFF 1: H DELAY 2: V DELAY 3: HV DELAY	OHV
5	DSD	Status display	0: CONTINUE 1: 3SEC OFF 2: OFF	DSD
6	ISM	Analog mode	ANA0: YPBPR ANA1: RGB-VIDEO ANA2: RGB-COMP.	ISM
7	IRF	RGB Sync	0: G-ON 1: EXT	IRF
8	DMK	Marker settings	16:9 marker DMK MK100: OFF MK101: 80% MK102: 88% MK103: 93% MK104: 95% MK105: 14:9 MK106: 13:9 MK107: 4:3 MK108: 90% MK109: CNSCO MK110: VISTA 4:3 marker MK200: OFF MK201: 80% MK202: 88% MK203: 93% MK204: 95% MK208: 90% Marker background BAK0: NORMAL BAK1: HALF BAK2: BLACK Center marker CMK0: OFF CMK1: ON	
9	MGM	Gamma selection	1: NORMAL 2: FILM	MGM
10	MCT	Color temperature settings	00: D56 01: D65 02: D93 03: VAR1 04: VAR2 05: VAR3 10-73: USER0–63	MCT
11	VPC	Sharpness settings	SHP0: LOW SHP1: HIGH SHH00-30 Horizontal sharpness settings SHV00-30 Vertical sharpness settings	VPC
12	MIP	IP mode settings	0: MODE1 1: MODE2	MIP
13	OMO	Monochrome settings	1: OFF 2: ON	OMO
14	MAS	SD aspect settings	0: 16:9 1: 4:3	MAS
15	MSC	Scan settings	0: NORMAL 1: UNDER	MSC
16	MCO	Remote settings	0: LOCAL 1: REMOTE	MCO
17	MLE	Remote operation settings	0: DISENABLE 1: INPUT	MLE

RS-232C Terminal (2/2)

Query command

No	Command	Explanation	Data	Response
1	QIS	Input selection		0: SDI1 1: SDI2 2: YPbPr 3: RGB-VIDEO 4: VIDEO 5: Y/C 6: RGB-COMP.
2	QPC	Image quality adjustment	CON : Contrast setting value	00-60
			BRI : Brightness setting value	00-60
			CRO : Chroma setting value	00-60
			PHA : Phase setting value	00-60
3	QBO	Blue only		0: OFF 1: ON
4	QMK	Marker	MAK : Area marker	00: OFF 01: 80% 02: 88% 03: 93% 04: 95% 05: 14:9 06: 13:9 07: 4:3 08: 90% 09: CNSCO 10: VISTA
			BAK : Background	0: NORMAL 1: HALF 2: BLACK
			CMK : Center marker	0: OFF 1: ON
5	QGM	Gamma		1: NORMAL 2: FILM
6	QCT	Color temperature		00: D56 01: D65 02: D93 03: VAR1 04: VAR2 05: VAR3 10-73: USER0–63
7	QPC	Sharpness	SHP : Sharpness mode	0: LOW 1: HIGH
			SHH : Horizontal sharpness value	00-30
			SHV : Vertical sharpness value	00-30
8	QIP	IP mode		0: MODE1 1: MODE2
9	QMO	Monochrome		1: OFF 2: ON
10	QAS	Aspect		0: 16:9 1: 4:3

No	Command	Explanation	Data	Response
11	QSC	Scan		0: NORMAL 1: UNDER
12	QAN	Analog mode		0: YPbPr 1: RGB-VIDEO 2: RGB-COMP.
13	QSY	RGB sync		0: G-ON 1: EXT
14	QFR	Format		01: 1080/60I 02: 1080/59I 03: 1080/50I 04: 1080/30P 05: 1080/29P 06: 1080/25P 07: 1080/24P 08: 1080/23P 09: 1080/24PsF 10: 1080/23PsF 13: 720/60P 14: 720/59P 15: 576/50I 16: 480/60P 17: 480/60I 18: 576/50P 20: 1080/60P 21: 1080/59P 22: 1080/50P 23: 720/50P 50: 640 x 400 (70Hz) 51: 640 x 480 (60Hz) 52: 640 x 480 (75Hz) 53: 640 x 480 (85Hz) 54: 800 x 600 (60Hz) 55: 800 x 600 (75Hz) 56: 800 x 600 (85Hz) 57: 1024 x 768 (60Hz) 58: 1024 x 768 (70Hz) 59: 1024 x 768 (75Hz) 60: 1024 x 768 (85Hz) 61: 1280 x 768 (60Hz) 62: 1280 x 768 (75Hz) 63: 1280 x 1024 (60Hz) FF: UNSUPORT SIGNAL

Compatible signal formats・ Specifications

Signal formats supported by BT-LH2600W

Input signal component formats	Video	Y/C	SDI 1	SDI 2	Y/Pb/Pr	RGB
NTSC	◎	◎				
PAL	◎	◎				
480/59.94i			◎	◎	◎	◎
480/59.94P					◎	◎
576/50i			◎	◎	◎	◎
576/50P			◎	◎		
720/50P			◎	◎	◎	
720/59.94P			◎	◎	◎	◎
720/60P			◎	◎	◎	◎
1035/59.94i			◎*1	◎ *1	◎ *1	◎ *1
1035/60i			◎*2	◎ *2	◎ *2	◎ *2
1080/23.98Psf			◎	◎	◎	
1080/24Psf			◎	◎	◎	
1080/23.98P			◎	◎	◎	
1080/24P			◎	◎	◎	
1080/25P			◎	◎	◎	
1080/29.97P			◎	◎	◎	
1080/30P			◎	◎	◎	
1080/50i			◎	◎	◎	◎
1080/50P					◎	
1080/59.94i			◎	◎	◎	◎
1080/59.94P					◎	
1080/60i			◎	◎	◎	◎
1080/60P					◎	

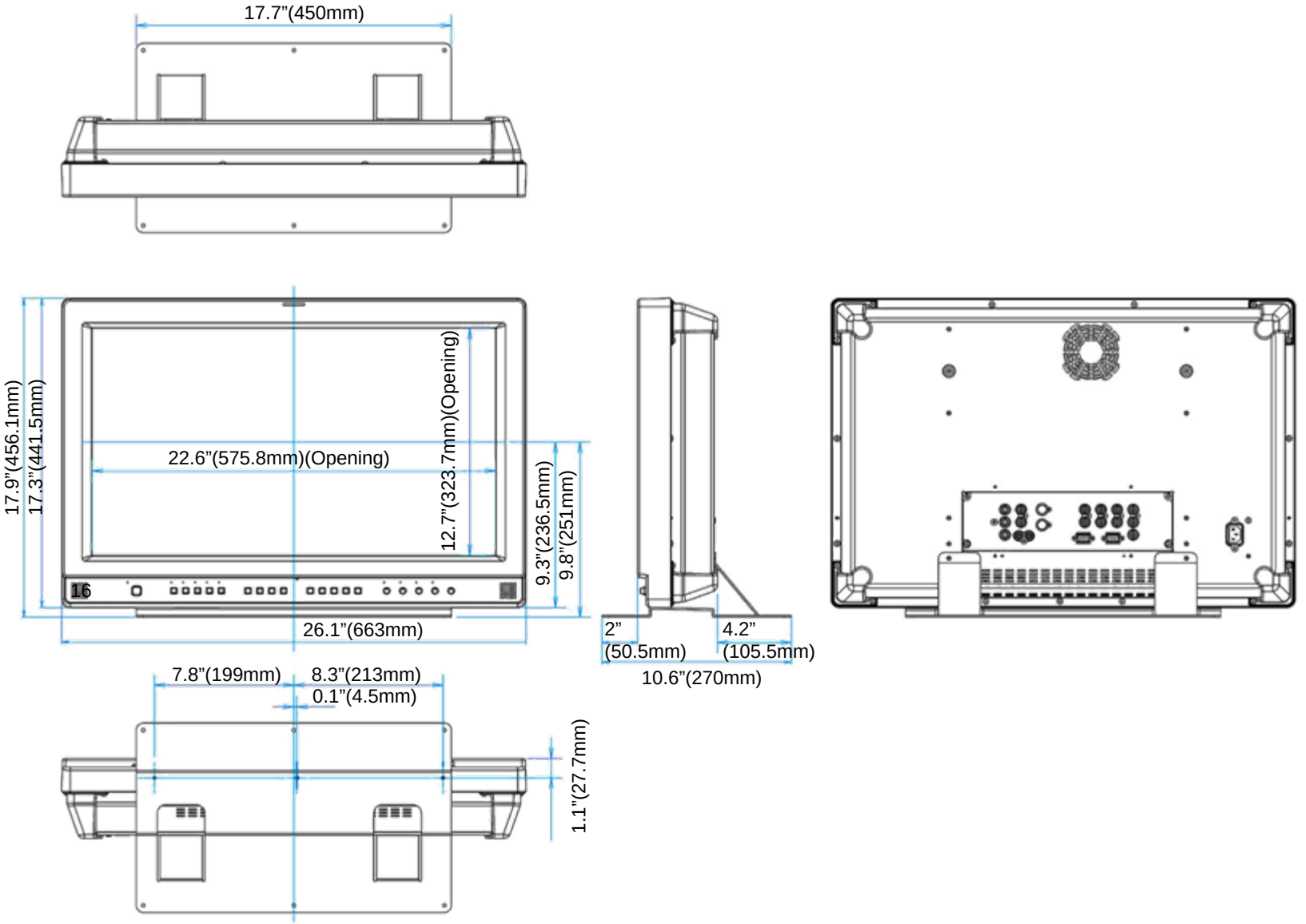
*1 Displayed as 1080/59.94I. When 1035/59.94I signal is input the marker will appear the same as the 1080/59.94I signal marker.
*2 Displayed as 1080/60I. When 1035/60I signal is input the marker will appear the same as the 1080/60I signal marker.

RGB (=PC)			
640×400 (70Hz)	◎	1024×768 (60Hz)	◎
640×480 (60Hz)	◎	1024×768 (70Hz)	◎
640×480 (75Hz)	◎	1024×768 (75Hz)	◎
640×480 (85Hz)	◎	1024×768 (85Hz)	◎
800×600 (60Hz)	◎	1280×768 (60Hz)	◎
800×600 (75Hz)	◎	1280×768 (75Hz)	◎
800×600 (85Hz)	◎	1280×1024 (60Hz)	◎

Specifications

General	
Power Requirement:	AC 100V – 240V 50/60Hz
Power Consumption:	1.5A –o.6A .
Dimensions (WxHxD):	26.1”x17.6”x10.6”(6663x456.1x270mm, including stand) 26.1”x17.3”x4.5”(663x441.5x114mm, Main unit only; not including stand)
Weight:	17.5kg(38.5lbs)(including stand), 15.0kg(33.0lbs)(Main unit only; not including stand)
Operating Temperature:	+5 °C to +35 °C
Operating Humidity:	10 % to 80 % (non dew)
Storage Temperature:	-20 °C to +60 °C
Storage Humidity:	10 % to 90 % (non dew)
Display Panel	
Panel Size:	26”
Aspect Ratio:	16:9
Number of pixels:	1,366 x 768 dots (WXGA)
Display colors:	More than16,770,000 colors
View angle:	176° up/down, 176° right/left
Connectors	
Video input:	VIDEO: 1 line, BNC x 2 (Through connector x 1) Y/C: 1 line, 4-pin x 2 (Through connector x 1) Analog component (YPbPr/RGBS): 1 line, BNC x 8 (Through connector x 4) However, with RGB-COMP input, it is R, G, B, HD, VD), BNC x5 (Through-out cannot be connected) SDI: BNC x 3 (switched-out connector x 1)
Audio input:	Pin jack x 2 (stereo)
GPI:	D-SUB, 9 pins x 1
RS-232C:	D-SUB, 9 pins x 1
DC input:	XLR, 4 pins x 1
Signal level	
VIDEO:	EXT SYNC signal level: 0.3 V p-p to 4.0 V p-p HD/VD signal level: TTL level
AUDIO:	AUDIO input level: 0.5 Vrms Speaker output: 0.5 W + 0.5 W
Accessories:	Power cord, Power cord hook, Screw

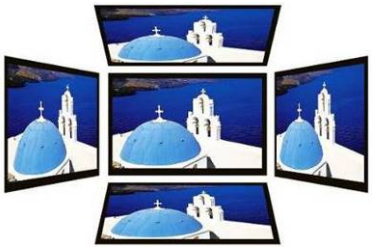
Dimensions


17.7”(450mm)
17.9”(456.1mm)
17.3”(441.5mm)
22.6”(575.8mm)(Opening)
12.7”(323.7mm)(Opening)
9.3”(236.5mm)
9.8”(251mm)
26.1”(663mm)
2”
(50.5mm)
4.2”
(105.5mm)
10.6”(270mm)
7.8”(199mm)
8.3”(213mm)
0.1”(4.5mm)
1.1”(27.7mm)

Monitor Related Terminology

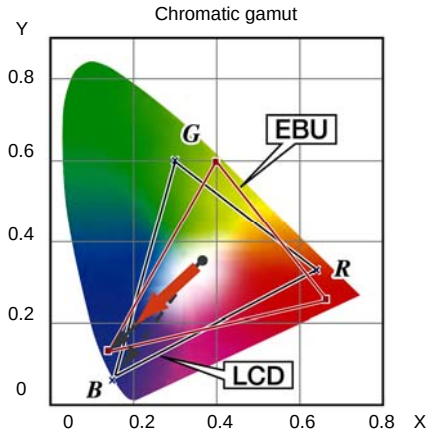
■IPS LCD Technology

IPS stands for In-Plane-Switching and is one type of TFT LCD display methods. When voltage is applied, the liquid crystal molecules rotate in parallel with the substrate, so in addition to a wide angle of view there is little change in color tone depending on the viewing direction and little change in color tone in all gradations from white to black. Natural images are displayed no matter where the screen is viewed within a 176° viewing angle, left and right, up and down.



■EBU Standards

Strict studio standards have been established for professional broadcasting monitors because they constitute standards for color reproduction. Of these standards, PAL/SECAM signals use CRT phosphor color standards specified by the European Broadcast Union (EBU). CRT and LCD differ slightly in terms of chromatic gamut so color appears differently.
BT-LH1700W uses color space conversion technology to achieve EBU-compliant color reproducibility equivalent to CRT.



■Waveform Monitoring

Check setup and gains by monitoring the luminance channel.

■H/V Display

H and V are short for horizontal and vertical. This is a function for monitoring synchronized vertical and horizontal signals in the blanking and other special signals. When the function is on, vertical and horizontal blanking information that is normally off the screen is displayed.

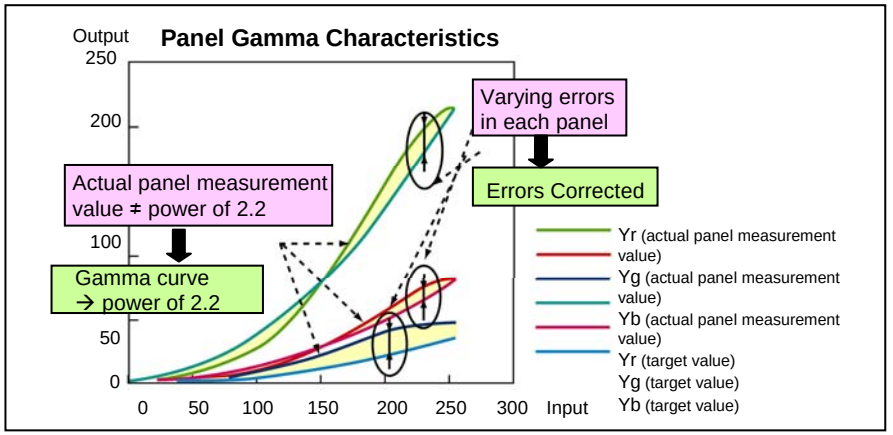
■SDI

Serial Digital Interface (SDI) is an interface standard for handling digital video and sound signals used at broadcasting stations. A non-compressed digital signal can be transmitted with one coaxial cable. There are HD-SD standards for high definition and SD-SDI standards for NTSC, etc.

■Gamma Correction

Gamma is the relationship between input and output in imaging devices and monitors. In terms of the diagram, which plots the input value on the horizontal axis and the output value on the vertical axis, it is ideal for the input/output path to extend in a straight line to the right at a 45 degree angle. However, because imaging devices and monitors have specific characteristics, the ideal is not easily realized. Corrections with properties inverse to that of the specific characteristics therefore are applied to the input signal to make the resulting relationship between input and output 1:1. This is gamma correction.

- With BT-LH2600W, corrections are applied for each monitor in 256 independent RGB steps, enabling the reproduction of specified gamma properties (γ = 2.2) and the realization of gradation suitable to professional applications.



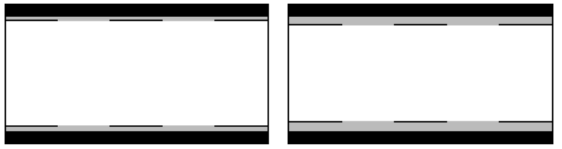
■CNSCO

Short for cinema scope. Along with Vista, CNSCO is a representative film size for widescreen applications. The vertical-horizontal aspect ratio is 1:2.35.

■VISTA

Screen size for Vista Vision films. Vertical-horizontal aspect ratio is 1:1.85 (for films in U.S., Japan, etc.; French films are 1:1.66). It currently is the standard size for movies.

■BT-LH2600W's VISTA and CNSCO markers



VISTA Marker CNSCO Marker

■Blue Only

Video monitor function that enables display of only RGB blue signals. Normally, it is used with the color bar to adjust chroma and phase and to check input signal noise.