OBM W Series

Professional Video 4K Wall Monitor

4K HDR

Operational Instructions
OBM-W180
OBM-W210
OBM-W240
OBM-W310
OBM-W420
OBM-W460
OBM-W550

postium®

Table of Contents

1. Precaution

Always use set voltage.
AC 100 ~ 230V, 50/60Hz
DC 12V(OBM-W180/W210/W240) or DC 24V(OBM-W310)

All these instructions should be read and understood before operating the unit.

If liquid is spilled on or impacts this product, please disconnect the product immediately and seek professional help before continued use.

Unplug the unit from the wall outlet if it is not to be used for several days or more.

Keep unit in a well-ventilated place to prevent overheating.

Do not install the product near any heat-generating equipment. Also, keep the product out of direct sunlight or dusty areas.

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

When using other DC 12V(OBM-W180/W210/W240) or DC 24V(OBM-W310) adapters instead of the standard adapter provided by the manufacturer, please check the proper load capacity or current capacity and use an adapter with stable voltage.

Do not overload AC outlets or extension cords. Overloading can cause fire or electric shock.

A very small proportion of pixels may be stuck, either always off (black), always on (red, green, or blue), or flashing. In addition, over a long period of use, because of the physical characteristics of the liquid crystal display, such stuck pixels may appear spontaneously. These problems are not a malfunction.

If a fixed picture such as a frame of a divided picture or time code, or a still picture is displayed for a long time, an image may remain on the screen and be superimposed as a ghosting image.

The permanent burn-in may occur for LCD panel if still images are displayed in the same position on the screen continuously, or repeatedly over extended periods.
To reduce the risk of burn-in,
a. Turn off the character displays.
b. Turn off the power when not in use.
c. Turn off the power if the monitor is not to be used for a prolonged period of time.

Do not attempt to service the product yourself. Removing covers can expose you to high voltage and other dangerous conditions. Request a qualified service person to perform servicing.

When the product needs replacement parts, make sure that the service person uses replacement parts specified by the manufacturer, or those with the same characteristics and performance as the original parts. Use of unauthorized parts may result in fire, electric shock and/or other danger.

Only clean the product with a noncommercial, mild and neutral detergent.

Do not throw away the carton and packing materials. When transporting the product, make use of its original packaging for safer carriage.

FCC (Federal Communications Commission)
This equipment has been tested and found to comply with the limits for class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
⚠ Warning!! : Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Disposal of Old Electrical & Electronic Equipment
(Applicable in the European Union and other European countries with separate collection systems)
This symbol on the product or on its packing indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequence for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources.

2. Main Features

The OBM W series incorporates 12G-SDI input and loopout(x2), HDMI 2.0 input, SFP optical connector, Component and Composite on the panel of full HD resolution. So, the OBM W series is ideal for building up a 4K monitor wall in the studio or OB van. The OBM W series offers the advanced and convenient features such as HDR(High Dynamic Range), Ethernet Control, Camera Log display, etc.

· 12G/6G-SDI 2 Channel
· Dual Link 3G-SDI 2-Sample Interleave
· HDMI 2.0 Support
· HDR(High Dynamic Range) Display supporting PQ EOTF(ST 2084), Hybrid Log Gamma, S-Log3
· 3D-LUT for Accurate Color Reproduction
· 1.064 Billion Colors
· Camera Log Conversion
· Camera Log Mapped SDI Loopout
· Custom 3D LUT File Import Through USB
· Gamma Selection (1.0 ~ 3.0)
· Color Temperature(3200K, 5500K, 6500K, 9300K, USER 1/2/3, DCI-P3)
· Compare Color Settings (Side by Side, Wipe Position)
· Waveform, VectorScope (Wave + Vector, Waveform Wide)
· Various Markers (EBU, 4:3, 16:9, 1.85:1, 2.35:1, Variable etc.)
· Internal White Patterns and Color Bar Display for Color Test
· De-embedded 8~16ch Audio Level Meter
· Remote Control via GPI(RJ-45) Port
· HDR Waveform
· 3 Color TALLY Lamp
· Rack & VESA Mount (Option)
· SFP Optical Connector
· Monitor Control via Ethernet, RS-422
· Easy Firmware Update by USB
· Focus Assist
· Zebra
· Support 4096x2160 Aspect
· Zero Scan / 1:1 Scan
· H/V Delay
· Aspect
· Freeze
· Blue/Mono Only
· Time Code Display
· IMD
· Closed Caption(608, 708)
· System Data Copy
· Key Lock & Password Lock

3. Location and Function of Parts and Controls

Front Panel
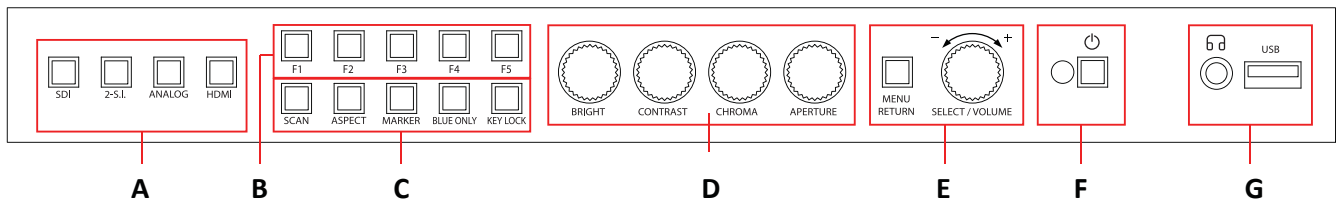
A : Input select Buttons/Lamp
Press to monitor the signal input to each connector.
[SINGLE] Button/Lamp
 - Press the button to select SDI input or SFP input for one channel.
 - Mode changes in the order of [12G SDI-1], [12G SDI-2], [3G SDI-3], [3G SDI-4], [SFP]*.
 *When a SFP module is inserted, [SFP] input can be selected.
[2-S.I.] Button/Lamp
 - Press the button to select 2-SAMPLE Interleave SDI input signal through two or four SDI input connectors.
 - Mode changes in the order of [Dual-Link 2-S.I.], [Quad-Link 2-S.I.].
[ANALOG] Button/Lamp
 - Press the button to select Analog Input.
 - Mode changes in the order of [Composite] [Component].
[HDMI] Button/Lamp - Press the button to select HDMI input.

B : F1 ~ F5 Button/Lamp
Press to adjust or turn on/off the assigned function.
The following functions are assigned at the factory.
[F1]: Color Space Compare
[F2]: H/V Delay
[F3]: Color Temp
[F4]: Audio Level Meter
[F5]: Time Code

C : Function Button/Lamp
Press to adjust or turn/off each function.
[SCAN] Button - Press the button to adjust the scan mode. (Zero Scan, 1:1 Scan).
[ASPECT] Button
 - Press the button to select the Aspect Ratio of the signal.
 - Mode changes in the order of [16:9] [4:3] [2.35;1] [1.85:1] [15:9] [16:10] [AUTO].
[MARKER] Button- Press the button to activate and deactivate the Marker.
[BLUE ONLY] Button
 - Press the button to activate and deactivate the Blue Only function.
 - You may remove R(red) and G(green) from the input signal and play the screen only with B(blue) signal.
   This function is convenient to adjust Chroma and Phase and to observe the signal noise.
 - The button may be pressed twice to change the screen to MONO mode.
   (This mode uses only Luminance value)
[KEY LOCK] Button- Press the button to lock all buttons except Power.

D : Rotary encoder
[BRIGHT] knob
Press this knob to display the adjustment screen and adjust the picture brightness. Press again to hide the adjustment screen. Turn the knob right to increase the brightness and turn left to decrease it.
[CONTRAST] knob
Press this knob to display the adjustment screen and adjust the picture contrast. Press again to hide the adjustment screen. Turn the knob right to increase the contrast and turn left to decrease it.

[CHROMA] knob

Press this knob to display the adjustment screen and adjust the color intensity. Press again to hide the adjustment screen. Turn the knob right to increase the color intensity and turn left to decrease it.

[APERTURE] knob

Press this knob to display the adjustment screen and adjust the picture sharpness. Press again to hide the adjustment screen. Turn the knob right to make the picture sharper and turn it left to make the picture softer.

E : Menu Operation Buttons

Displays or sets the on-screen menu.

[MENU/RETURN]

- Activates and deactivates the display of the Main Menu.
- When the on-screen menu is not displayed, if this button is pressed the main menu is displayed. When the menu is displayed, press the button to return to the previous menu.

[SELECT/VOLUME] knob (Menu selection control)

- When the menu is displayed, turn the knob to select a menu item or a setting value, and then press the knob to confirm the setting.
- If this knob is pressed when the menu is not displayed, the adjustment screen of [VOLUME] is displayed to adjust the audio volume.
- Press this knob to change the modes in the order of [Focus Frequency] [Zebra Level] [Line Position] [Variable Marker] and adjust each mode's value.

  [Focus Frequency]: When Focus Assist function is activated, this mode is displayed.

  [Zebra Level]: When Zebra function is activated, this mode is displayed.

  [Line Position]: When WFM/Vector function and Line Select function is activated, this mode is displayed.

  [Variable Marker]: When Marker function is activated and Aspect Marker is set Variable, this mode is displayed.

F : (Standby) switch and indicator

- Press to turn the power on when this monitor is in standby mode. After being turned on, the monitor performs Initialization and the indicator flashes in green.
- Press the switch again for a second to set the monitor in standby mode. Then, the indicator flashes in orange and then turns red. The indicator in orange means that the monitor goes into the standby mode.

 When the indicator flashes in orange, this button doesn't work.

G : (headphone) jack & Speaker and USB connector

Headphone jack & Speaker

- The audio signal which is selected using the input select button is output in stereo sound.
- When SDI signals are input, the audio signals of the channels selected with SDI Audio Setting in the User Configuration menu are output.
- When the headphones are connected to the jack, audio signals will not be output.

  [USB] Connector

- To update CPU, GPU, FPGA program.
- To connect the monitor with the Color Calibration program provided by the manufacturer and perform the color calibration.
- To connect the monitor with the control program provided by the manufacturer and control functions

Rear Panel
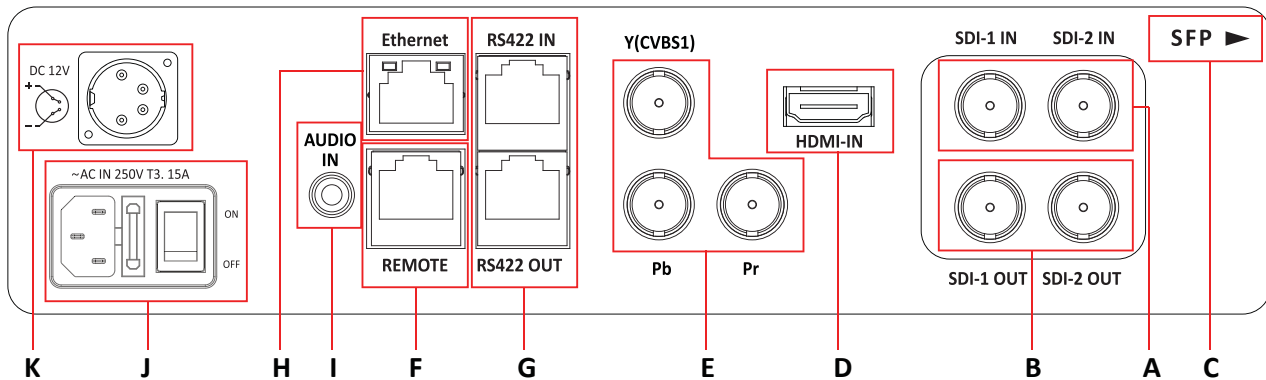
A : SDI IN (SDI Input) connectors (BNC)
  Input connectors for SDI signals. For details, see "Connecting the SDI Signals"

B : SDI OUT (SDI Output) connectors (BNC)
  Output connectors for SDI signals.
  Each connector outputs the signal which is input to the corresponding SDI IN connector.
  **Note* - Output is activated only when the power is on. Output is not activated in standby mode.

C : SFP Input connector
  Input connector for SFP optical signal.

D : HDMI input connectors
  Input connectors for HDMI signals.
  - For an HDMI cable, High Speed HDMI Cable with the cable type logo or HDMI 2.0 Cable is recommended.
  - When inputting 4K resolution(3840 x 2160 or 4096 x 2160) signal, use a cable of 3m or less.

E : Analog input connectors
   Input connectors for analog signals (CVBS, Component).

F : PARALLEL REMOTE connector(RJ-45, 8-pin)
  Forms a parallel switch and controls the monitor externally.

**Note* - For safety, do not connect the connector for peripheral device wiring that might have excessive
         voltage to this port. Follow the instructions about this port.

[Pin Assignment]

1   8
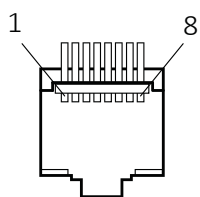
Functions can be changed in [Remote] section of the menu.

Pin Number	Function
1	Single SDI
2	2-S.I. SDI
3	Analog
4	HDMI
5	1:1 Scan
6	Aspect
7	Power
8	GND

G : SERIAL REMOTE IN/OUT connector (RJ-45)
  Used for the future function expansion.
  Connects the monitor to the control program provided by the manufacturer by using RS-422/485
  communication or the external UMD(IMD) equipment and controls the monitor.

H : LAN(10/100) IN/OUT connector
   Used for the future function expansion.
   Connects to the LAN (10/100) connector of the network by using 10BASE-T/100BASE-TX LAN cable.
   A daisy chain connection using the LAN input/output connectors enables the control of multiple monitors in
   sequence.

I : AUDIO IN connector (Stereo mini jack)
   Connector for analog audio input.
   Analog input can be selected with SDI Audio Setting in User Configuration menu.

J : DC IN terminal
   Connects the DC power supply to the monitor.
   - OBM-W180/W210/W240 : 12V
   - OBM-W310: 24V

   Make sure to use DC 12V power supply for OBM-W180/W210/W240 and DC 24V power supply for
   OBM-W310.

OBM-W180/W210/W240

```
DC IN Socket

                    4     3
  1 : GND

  4 : +12V

                    1     2
```

OBM-W310

```
DC IN Socket

                    4     3
  1 : GND

  4 : +24V

                    1     2
```
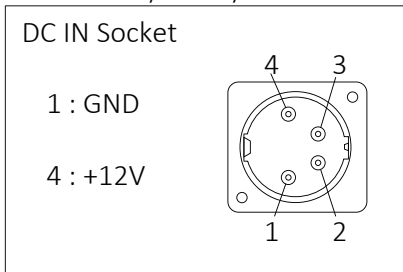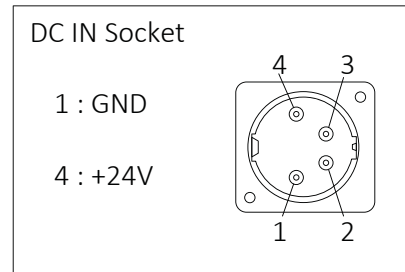
K : AC IN terminal
   AC power input connector.
   Connects the provided AC power cord.

```
~AC IN 250V T3. 15A     ON




                        OFF
```
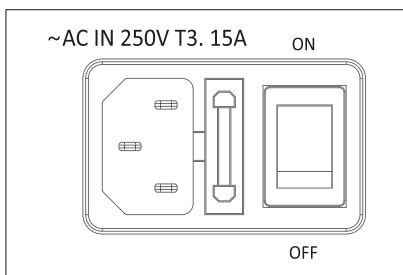
4. Using the Menu

This monitor is equipped with an OSD menu to make various adjustments and settings such as picture control, input setting, setting change, etc.

1. Press the MENU button.
   The menu appears.
   The menu presently selected is shown in gray.

2. Turn SELECT/VOLUME knob to select a menu, then press the knob.
   The menu icon presently selected is shown highlighted.

3. Select an item.
   Turn SELECT/VOLUME knob to select the item, then press the knob.
   The item to be changed is shown highlighted, and the sub menu is displayed on the right.
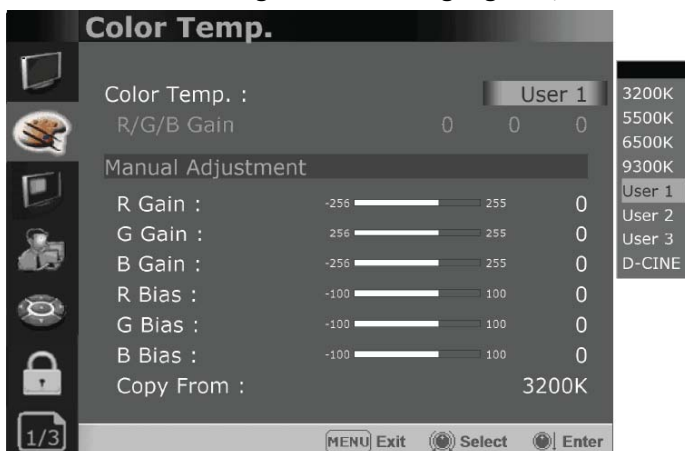
4. Make the setting or adjustment on an item.

   How to change the adjustment level:
   To increase the level, turn the SELECT/VOLUME knob right.
   To decrease the level, turn the SELECT/VOLUME knob left.

   How to change the setting:
   Turn the SELECT/VOLUME knob to change the setting, then press the knob to confirm the setting.

   **Note* - The item displayed in gray cannot be accessed. The item is accessible if it is displayed in white.

   To return the display to the previous screen
   Press the MENU button.

   To clear the menu
   Press the MENU button.

5. Adjustment Using the Menus

The OSD menu of this monitor consists of the following items.

Status menu (To indicate the current settings)
Format
Color Temp
Brightness
Contrast
Chroma
Aperture
Color Space
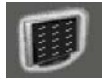Gamma
User Preset
RGB Range
WFM/Vector
Audio Level Meter
Focus Assist
Time Code
Volume
SDI Payload ID ── Identifier
                  Sampling
                  Picture Rate
                  Scanning Method
                  Bit Depth
                  Link Assignment
Model Name
Serial Number
Board Version
Operation Time
Last Calibration Time

Color Temp./Color Space/Gamma menu
Color Temp. ───────── R/G/B Gain
Manual Adjustment
  -R Gain / G Gain / B Gain / R Bias
   G Bias / B Bias / Copy From
Color Space
OBM-HDR
Gamma
Camera Log
  Default Log Sel.
  User Log Sel.
Back Light
HDR&Cam.Log Comparison
Wipe Position

Zebra/Focus menu
Zebra ────── Level Adjustment
Focus Assist ─ Color
               Frequency

User Configuration menu
User Preset
Function Button Setting
 ─ F1 Button / F2 Button / F3 Button
   F4 Button / F5 Button
Input Setting ── 3G Signal Format
                 RGB Range
                 SFP Enable
Camera Log ── Log Select
Speaker Out / Audio Level Meter Setting
  SDI Left Speaker Out
  SDI Right Speaker Out
  HDMI L/R Speaker Out
  Audio Level Meter ── Display
Marker Setting   Reference
Marker   Size/Transparency
  Aspect Marker ──   Peak Hold Time
  Center Marker   ── Variable Aspect
  Area Marker
  Color
  Aspect Mat
  Fit
  Thickness
WFM/Vector Setting
WFM/Vector ── Intensity
              Transparency
              Color
              Line Select ── Line Position
Closed Caption Setting
 Closed Caption ── Type / 708 / 608
System Setting ── Factory Reset
TimeCode   Internal Pattern
                 Key LED
                 OSD Time
                 OSD Position
                 System Data

Remote menu
Parallel Remote ── 1 Pin ~ 8 Pin
Monitor ID
In-Monitor Display Setting ─ IMD Type
                             Transparency
                             Text Color
                             Left Tally Color
                             Right Tally Color

Security Setting
Key Lock
Password
   User Parameter Lock
   Change Password

6. OSD Menu Operations

Status Menu

The Status menu displays the current status of the monitor. The following items are displayed.

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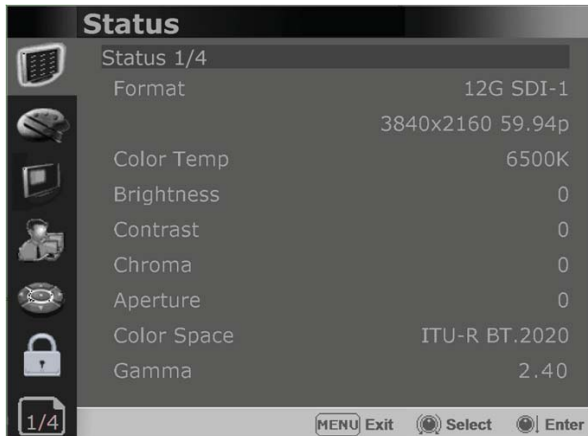
Format
Color Temp
Brightness
Contrast
Chroma
Aperture
Color Space
Gamma

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User Preset
RGB Range
Back Light
WFM/Vector
Audio Level Meter
Focus Assist
Time Code
Volume

Page 3/4
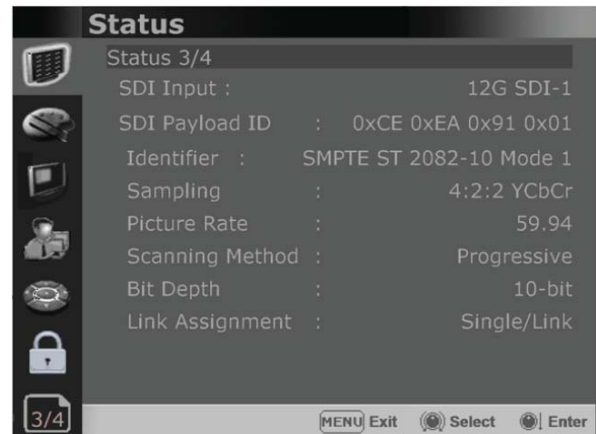
SDI Input
SDI Payload ID —— Identifier
                  Sampling
                  Picture Rate
                  Scanning Method
                  Bit Depth
                  Link Assignment

*** When the SDI signal is connected, these items are displayed.

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Model Name
Serial Number
Board Version
Operation Time
Last Calibration Time

Color Temp/Color Space/Gamma Menu

These menus are used for adjusting or setting the color temperature, color space or gamma of the picture.

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Color Temp

- Selects the color temperature from among [3200K] [5500K] [6500K] [9300K] [User1] [User2] [User3]] [DCI-P3].

  **Note - If Color Space is set to [DCI-P3], Color Temp. is fixed to [DCI-P3].

R/G/B Gain

- Displays the R/G/B Gain of the current Color Temperature.

Manual Adjustment

- If you set the Color Temp. to User 1/2/3, the item is changed from black to white, which enables you to adjust the color temperature.

R/G/B Gain/Bias

- Adjusts the color balance(Gain, Bias).
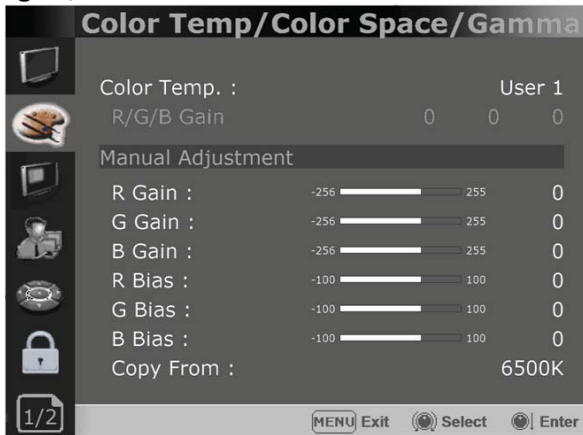
Copy From

- The Gain and Bias data of each Color Temp. are restored to User adjustment.

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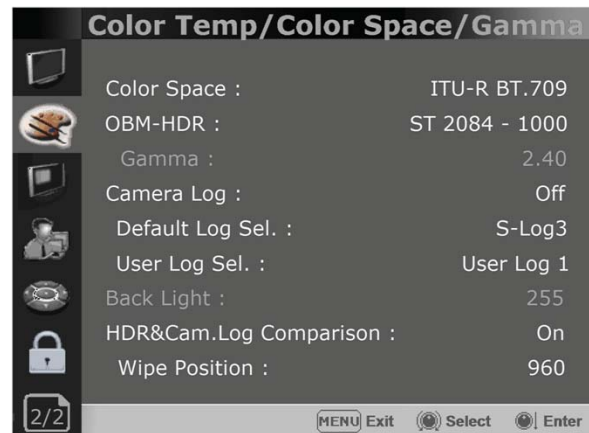
Color Space

- Selects the color space from between [ITU-R BT.709] and [Native].

OBM-HDR

Selects 4 modes of HDR gamma.

- ST-2084 1000: This mode displays the relative brightness up to 1000cd/m². The part exceeding 1000cd/m² is clipped.
- ST-2084 10000 : The characteristics of LCD panel doesn't allow to produce the ideal brightness required by this standard, so the gamma is displayed in the relative brightness.
- HLG-1.0 / 1.1 / 1.2 / 1.3 / 1.4 / 1.5 : These modes allow the user to apply HLG gamma from 1.0 up to 1.5.
- S-Log3: Select the S-Log3(HDR) gamma.

Gamma

- Selects the appropriate gamma mode from 1.00 to 3.00.

  **Note - When the OBM-HDR is set Off, this menu becomes activated.
  - When the color space is set to Native, this menu becomes deactivated.

When the color space is set to Native, this menu becomes deactivated.

Color Temp/Color Space/Gamma Menu

Camera Log
  Selects a camera log for the input signal.
  [Off]: Sets off the camera log.
  [Default]: The log which is selected in [Default Log Sel.]
       menu is applied.
  [User]: The log which is selected in [User Log Sel.]
       menu is applied.
  [Import Log Data]: Allows the user to save the Log
       LUT in USB memory stick to the monitor.
       The saved LUT can be used in User Log.
Default Log Sel.
  Allows the user to select a camera log among
  C-Log, Log-C EI 160~3200, S-Log2 To LC-709,
  S-Log2 To LC-709TypeA, S-Log2 To Slog2-709,
  S-Log2 To Cine+709, S-Log2 To LC-709, S-Log3
  To LC-709TypeA, S-Log3 To Slog2-709, S-Log3
  To Cine+709, J-Log1.
User Log Sel.
  Selects User Log 1 to 4.
**Note
- If you insert the USB memory stick which contains the
  user log data to the monitor and push Enter in
  [Import Log Data] menu, the data is saved to the
  monitor.
- The file name of the user log data is displayed on the
  OSD up to 15 characters, and the log data file should
  be placed on the top folder of the USB memory stick.

Ex) If the file name is 'S-log3 to LC709_A.cube', it is
displayed as 'S-log3 to LC709' on the OSD.

Back Light
  Adjusts the level of the back light.
  If the back light value is increased, the screen becomes
  brighter.
** If the setting in Color Temp. menu and Color
   Space menu is changed, the value of Back Light
   returns to the default value of the color
   calibration in the factory.
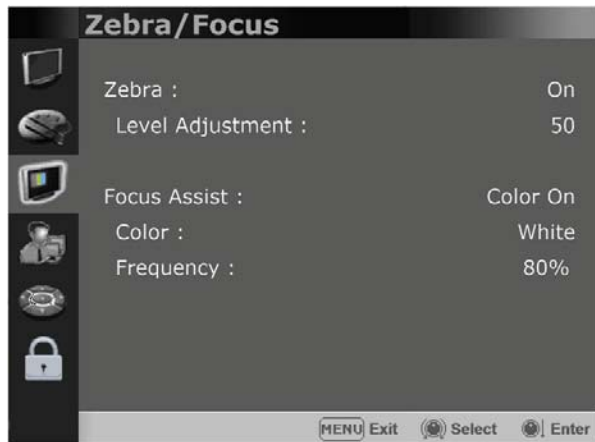**HDR&Cam.Log Comparison**
 Divides the screen side by side, applies HDR or Camera
 log on the left side, and compares the picture between
 the left side and the right side.

 Wipe Position
 - Adjusts the boundary line of the left and right area.
  Allowed to adjust the boundary line by using the
  SELECT/VOLUME knob.

Zebra/Focus Menu

Zebra

- Evaluates the Luma(Y') level of the input image. If the certain Y' level is set, the pixels with the designated Luma(Y') level are displayed in zebra pattern.

** Pixels with Y' level over 100% turn to red zebra pattern, and pixels with Y' level under 0% turn to green zebra pattern.

Level Adjustment
- Adjusts the Y' level as the user wants.

Focus Assist
- Controls the aperture level of a video signal and displays images on screen with sharpened edges to help camera focus operation.

Available types are [Color On] and [Mono On].
- [Color On]: The background image is the original color type.
- [Mono On]: The background image is the mono type.

Color
- Selects a color for Focus Assist among [Red], [Green], [Blue], [White], [Yellow], [Cyan], [Magenta]

Frequency
- Adjusts the edge difference level between the edges in an image.
- Available values are from 0% to 100%.

User Configuration Menu

User Configuration consists of the adjustment menus such as[User Preset], [Function Button Setting], [Input Setting], [Speaker Out / Audio Level Meter Setting], [Marker Setting], [WFM/Vector Setting], [Closed Caption Setting], [System Setting].

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User Preset
- Allows to check the adjustment status which each user presets.
- All the adjustments the user sets are automatically saved.

Function Button Setting
- Assigns the function for F1 to F5 buttons on the front panel.
The following functions can be assigned.
[HDR&Cam.Log Compare], [H/V Delay], [Color Temp.], [Audio Level Meter], [Time Code], [Zebra],[Focus Assist], [WFM/Vector], [Camera Log], [Closed Caption], [OBM-HDR], [Freeze]

- The following functions are assigned in the factory.
  [F1 Button] : HDR&Cam.Log Compare
  [F2 Button] : H/V Delay
  [F3 Button] : Color Temp
  [F4 Button] : Audio Level Meter
  [F5 Button] : Time Code

User Configuration Menu

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User Configuration
Input Setting
  3G Signal Format :   Auto
  RGB Range :   Limited
  SFP Enable :   Enable

2/7   MENU Exit   Select   Enter

Input Setting

3G Signal Format
- Selects the format of 3G SDI input signal.
  : [Auto], [A 4:4:4 YUV 10b], [A 4:4:4 GBR 10b],
    [A 4:4:4 YUV 12b], [A 4:4:4 GBR 12b],
    [A 4:2:2 YUV 12b], [B DL 4:4:4 YUV 10/12b],
    [B DL 4:4:4 GBR 10/12b], [B DL 4:2:2 YUV 12b],
    [B DL 4:2:2 YUV 10b 60p]

RGB Range
- Selects Black Level and White Level of RGB format.
  *Limited : 64(10bit)/256(12bit) ~
   1023(10bit)/4095(12bit)
  *Full: 0(Black Level) ~ 1023(10bit)/4095(12bit)

SFP Enable
- Allows for SFP input to be selected by pushing
  [SINGLE] button on the front panel.

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User Configuration
Speaker Out / Audio Level Meter Setting
  SDI   Left Speaker Out :   CH1
        Right Speaker Out :   CH2
  HDMI L/R Speaker Out :   HDMI On
  Audio Level Meter :   16Ch [G1~G4]
    Display :   Pair
    Reference :   -18dB
    Size/Transparency :   Normal/Full
    Peak Hold Time :   30

3/7   MENU Exit   Select   Enter

Speaker Out / Audio Level Meter Setting
- Selects the audio channel of the SDI & HDMI
  input signal.
SDI : Left Speaker Out / Right Speaker Out
- Selects the embedded audio channel for the
  left and right audio out of the Headphone jack
  on the front panel of the monitor.
  Audio channel can be selected among Ch1 ~
  Ch16, Analog.
HDMI : L/R Speaker Out
- Selects the embedded audio channel of the
  HDMI signal. The available models are [Off],
  [HDMI On], [Analog On].

Audio Level Meter
  Selects the embedded audio mode.
  : [Off], [8Ch [G1+G2]], [8Ch [G2+G3]], [8Ch [G3+G4]],
    [8Ch [G1+G3]], [8Ch [G1+G4]], [8Ch [G2+G4]],
    [16Ch [G1~G4]]
    ** In HDMI input, either [Off] or [HDMI 2Ch]
       can be selected.
Display
  Selects the display method for Audio Level Meter.
  Available modes are [Group] and [Pair].
  ** In HDMI input, the mode is fixed to [Pair].
Reference
  Selects the default value of Audio Level Meter.
  Available options are [-18dB] and [-20dB].
Size/Transparency
  Selects the size and transparency of Audio Level
  Meter.
  Available options are [Normal/Full],
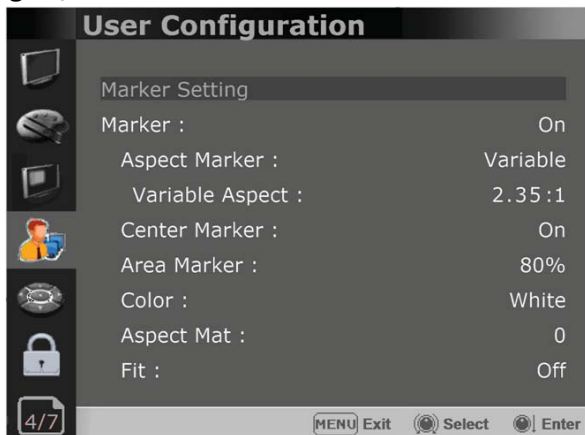 [Normal/Half], [Large/Full], [Large/Half].
Peak Hold Time
  Controls the speed rate of Peak Hold Decay
  Time occurring when the audio volume decreases.

 User Configuration Menu

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Marker Setting

Marker
- Selects On to display the marker, and Off to deactivate it.

Aspect Marker
Selects the aspect ratio of the marker.
You can select from among [Off], [16:9], [4:3], [4:3 ON AIR], [15:9], [14:9], [13:9], [1.85:1], [2.35:1], [2.39:1], [1.85:1 & 4:3], [1.66:1], [1.896:1], [Variable].
 *Variable Aspect
   Allows the user to select the aspect ratio from the range between 1.00:1 and 3.00:1.

Center Marker
Selects On to display the center marker and Off not to display it.

Area Marker
Selects the size of the area marker.
You can select from among [Off], [80%], [85%], [88%], [90%], [93%], [100%], [EBU Action 16:9], [EBU Graphic 16:9], [EBU Action 14:9], [EBU Graphic 14:9], [EBU Action 4:3], [EBU Graphic 4:3].

Color
Selects the color of the marker.
You can select from among [White], [Gray], [Red], [Green], [Blue], [Yellow], [Cyan], [Magenta].

Aspect Mat
Darkens the outside of the area of the Aspect Marker. You can select from 0 to 7.

Fit
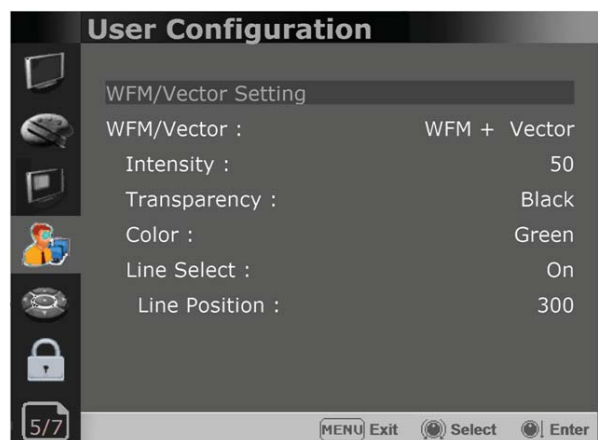With Fit On, the Area Marker is displayed relative to the Aspect Marker in use.
With Fit Off, the Area Marker is displayed relative to the incoming video source.

Thickness
Adjusts the thickness of the marker lines.
You can select it from 1 to 7.

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WFM/Vector Setting

WFM/Vector
- Sets to activate and deactivate Waveform monitor and Vectorscope.
  You can select from among [WFM], [VectorScope], [WFM+Vector], [WFM Wide].
  *This function doesn't work when RGB format signal is input.

Intensity
Adjusts the brightness of Waveform and Vectorscope display.
You can select from 1 to 64.

Transparency
Adjusts the transparency level of Waveform and Vectorscope.
[Black]: The background is black. Displayed image is hidden behind the background.
[Half]: The background is transparent. Displayed image can be seen indistinctly behind the Waveform and Vectorscope display.

Color
Selects the color of Waveform monitor.
Available colors are [Green] and [White].

Line Select
Selects [On] to display the Waveform of the line assigned in [Line Position] below.
 *Line Position
   Selects the specific horizontal line for Waveform and Vectorscope.
   Increases the value to move the line upwards and decreases the value to move the line downwards.

 User Configuration Menu

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> **User Configuration**
>
> Closed Caption Setting
> Closed Caption :   On
> Type :   708
> 708 :   Service1
> 608 :   CC1
>
> 6/7   MENU Exit   Select   Enter

Closed Caption Setting

Closed Caption

Selects [On] to display the Closed Caption and [Off] not to display.

Type

Sets the Closed Caption type
[708]: Selects this mode to display 708 when HD-SDI signal is input.
[608(VBI)]: Selects this mode to display 608(VBI) when SD-SDI signal is input.
[608(708)]: Selects this mode to display 608(708) when D-SDI signal is input.

708

Sets the Closed Caption type for 708.
Selects from [Service1] to [Service6].

608

Sets the Closed Caption type for 608(708) and 608(VBI). Selects from [CC1] to [CC4].

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> **User Configuration**
>
> System Setting
> Factory Reset :   No
> Internal Signal :   Off
> Key LED :   Off
> OSD Time :   10 Sec.
> OSD Position :   Center
> System Data :   Save to USB
>
> Time Code :   LTC
>
> 7/7   MENU Exit   Select   Enter

System Setting

Factory Reset

Initializes OSD values to the factory default.

Internal Signal

Generates the White Pattern and Color bar internally. The selectable range for the white Pattern is from 100%(White) to 0%(Black).

Key LED

Sets On to turn on the LED of the keys, and sets Off to turn off the LED of the keys.

OSD Time

Adjusts the display time of the OSD menu.
[10 Sec.]: The OSD menu will be disappeared after 10 seconds.
[20 Sec.]: The OSD menu will be disappeared about 20 seconds.
[30 Sec.]: The OSD menu will be disappeared about 30 seconds.
[On]: The OSD menu will not be disappeared.

OSD Position

Sets the position of OSD. Selects [Center] to [Left Bottom].

System Data

-[Save to USB]
Saves the current settings of the monitor to the USB memory.
-[Copy from USB]
Recalls the settings saved in the USB memory, and load them to the monitor.
- Saves and adjusts the settings of User 1 of User Preset.

Time Code
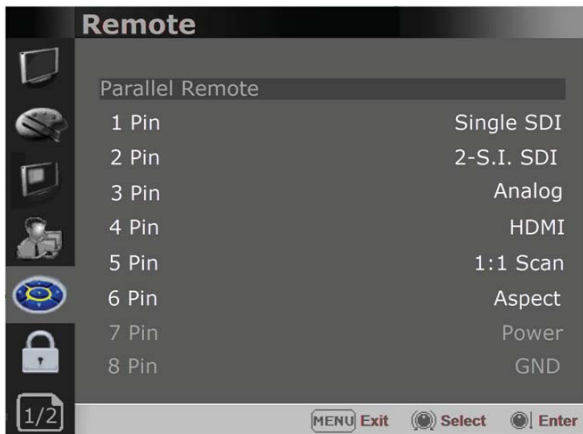
- Selects the type of the time code to be displayed.
[VITC]: To display the VITC time code
[LTC]: To display the LTC time code

Remote Menu

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Remote

Parallel Remote	
1 Pin	Single SDI
2 Pin	2-S.I. SDI
3 Pin	Analog
4 Pin	HDMI
5 Pin	1:1 Scan
6 Pin	Aspect
7 Pin	Power
8 Pin	GND

1/2   MENU Exit ⊚ Select ⊚| Enter

Parallel Remote

Selects the Parallel Remote connector pins for which you want to change the function.
Various functions can be assigned to pin 1 to 6.
The following is the list of the functions which can be assigned to the pins.

[--], [Single SDI], [2-S.I. SDI], [Analog], [HDMI], [Scan], [1:1 Scan], [Aspect], [H/V Delay], [Blue Only], [Mono], [A 16:9], [A 4:3], [A 4:3OnAir], [A 15:9], [A 14:9], [A 13:9], [A 1.85:1], [A 2.35:1], [A 1.85:1&4:3], [Center M.], [Area 80%], [Area 85%], [Area 88%][Area 90%], [Area 93%], [Area 100%], [TALLY R], [TALLY G]

** [--]: No function is assigned.

*7 Pin: For Power On and Off only
*8 Pin: For Ground only

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Remote

Monitor ID :   0

In-Monitor Display Setting
IMD Type :   TSL V3.1
Transparency :   Full
Text Color :   White
Left Tally Color :   Red
Right Tally Color :   Green

2/2   MENU Exit ⊚ Select ⊚| Enter

*Monitor ID

Sets the ID of the monitor to control the monitor through Serial Remote or Network.

In-Monitor Display Setting

The monitor supports "TSL UMD Protocol – V3.1" provided by Television System Ltd.
[Transparency], [Text Color], [Left Tally Color], [Right Tally Color] can be set in the setting menu.

	CAMERA-1	

Left Tally   Right Tally

** The monitor displays English alphabet, numbers, Symbolic codes.
** Up to 16 characters can be displayed in English.

IMD Type

Selects [TSL V3.1] to activate IMD and [Off] to turn it off.

Transparency

Selects [Full] or [Half] for the background of IMD.
-[Full]: The background is black. Displayed image is hidden behind the background.
-[Half]: The background is transparent. Displayed image can be seen indistinctly behind the IMD display.

Text Color

Selects the color of text displayed in IMD.
[White],[Red],[Green],[Blue],[Yellow],[Cyan], [Magenta]

Left Tally Color

Selects the color of left tally lamp displayed in IMD.
[White],[Red],[Green],[Blue],[Yellow],[Cyan], [Magenta]

Right Tally Color

Selects the color of right tally lamp displayed in IMD.
[White],[Red],[Green],[Blue],[Yellow],[Cyan], [Magenta]

Security Menu

Security

Security Setting
Key Lock	Off
Password	* * * *
User Parameter Lock :	Off
Change Password	* * * *

MENU Exit   Select   Enter

Security Setting

Key Lock
When Key Lock function is set On, the change of the menu settings and functions doesn't work.
** The same function as [Key Lock] button on the front panel.

Password Lock
-This function allows the user to protect the setting values through password.
-When the Password Lock is applied, the functions and the setting values can be changed, but they are not saved.
-When you protect the setting values with a password, set a four-digit number.
-The initial password is 0000.
-When you use [Password Lock], change the initial password first.

User Parameter Lock
Selects [On] to protect the setting values.
Selects [Off] to not protect by the password.
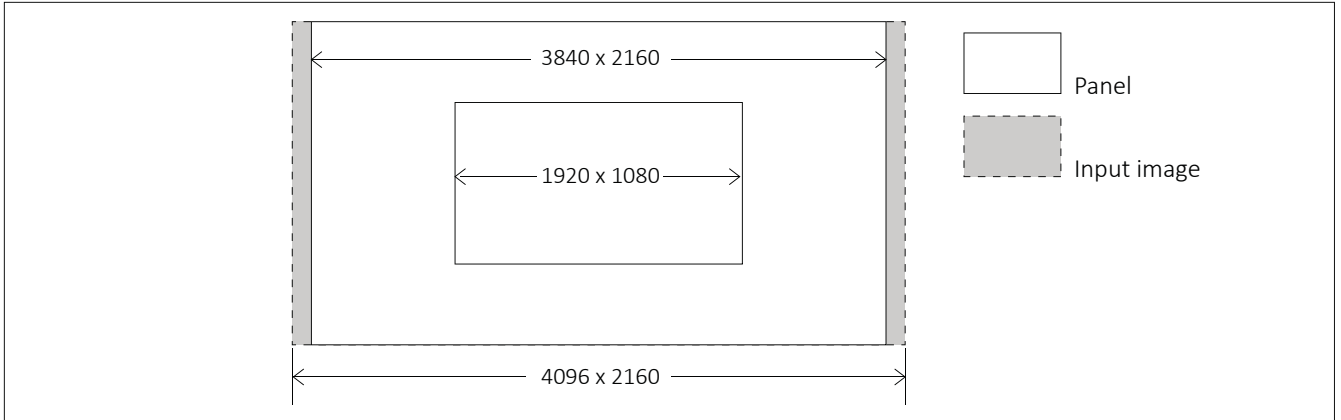When [On] is selected, OSD background is displayed with the lock image as shown below.

Security

Security Setting
Key Lock	Off
Password	* * * *
User Parameter Lock :	On
Change Password	* * * *

* * * _

MENU Exit   Select   Enter

Change Password
Changes the password.

7. Scan Mode Image

4K/QFHD Mode

The LCD panel resolution is FHD(16:9) 1920x1080. So, when Zero Scan is selected, if the input signal is QHD(3840x2160) it is scaled to 1920x1080(16:9), and if the input signal is DCI 4K(1.89:1) 4096x2160 it is scaled to 1920x1012(1.89:1).

If you press [Scan] button and select [1:1 Scan] mode, 1:1 pixel mapping of the original image is displayed. The location of the image can be changed by rotating the [SELECT/VOLUME] knob.

[Position change in 1:1 Scan]
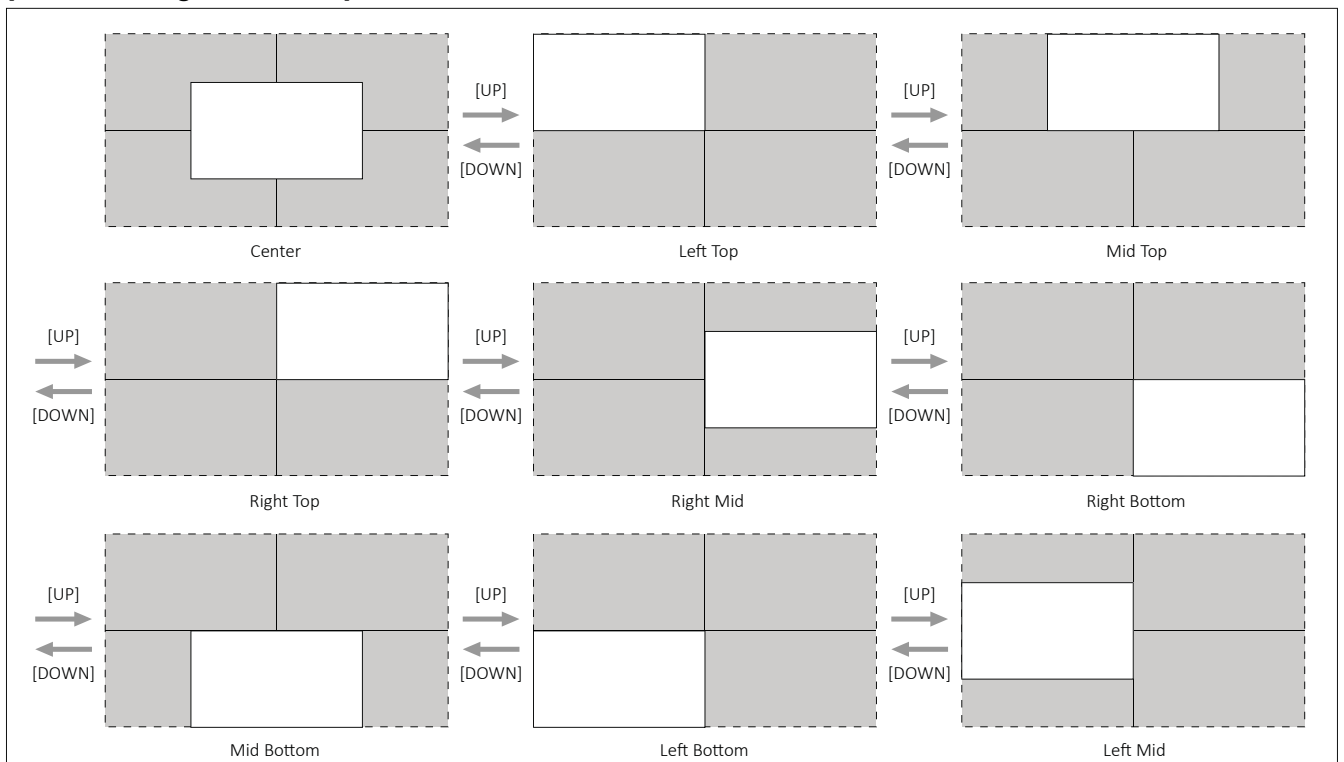
**Note -When QFHD/DCI 4K signal is fed, [Aspect] button is not activated.

Scan Mode

When the 4096 x 2160(1.89:1) signal is fed to the 1920x1080(16:9) resolution sceen, if you select Zero Scan mode, the whole picture is displayed on the screen, with maintaining 1.89:1 ratio.

Panel 1920x1080(16:9)

Panel

Input image

Input Image 4096x2160(1.89:1)

Panel 1920x1080(16:9)

Input Image 1920x1012(1.89:1)
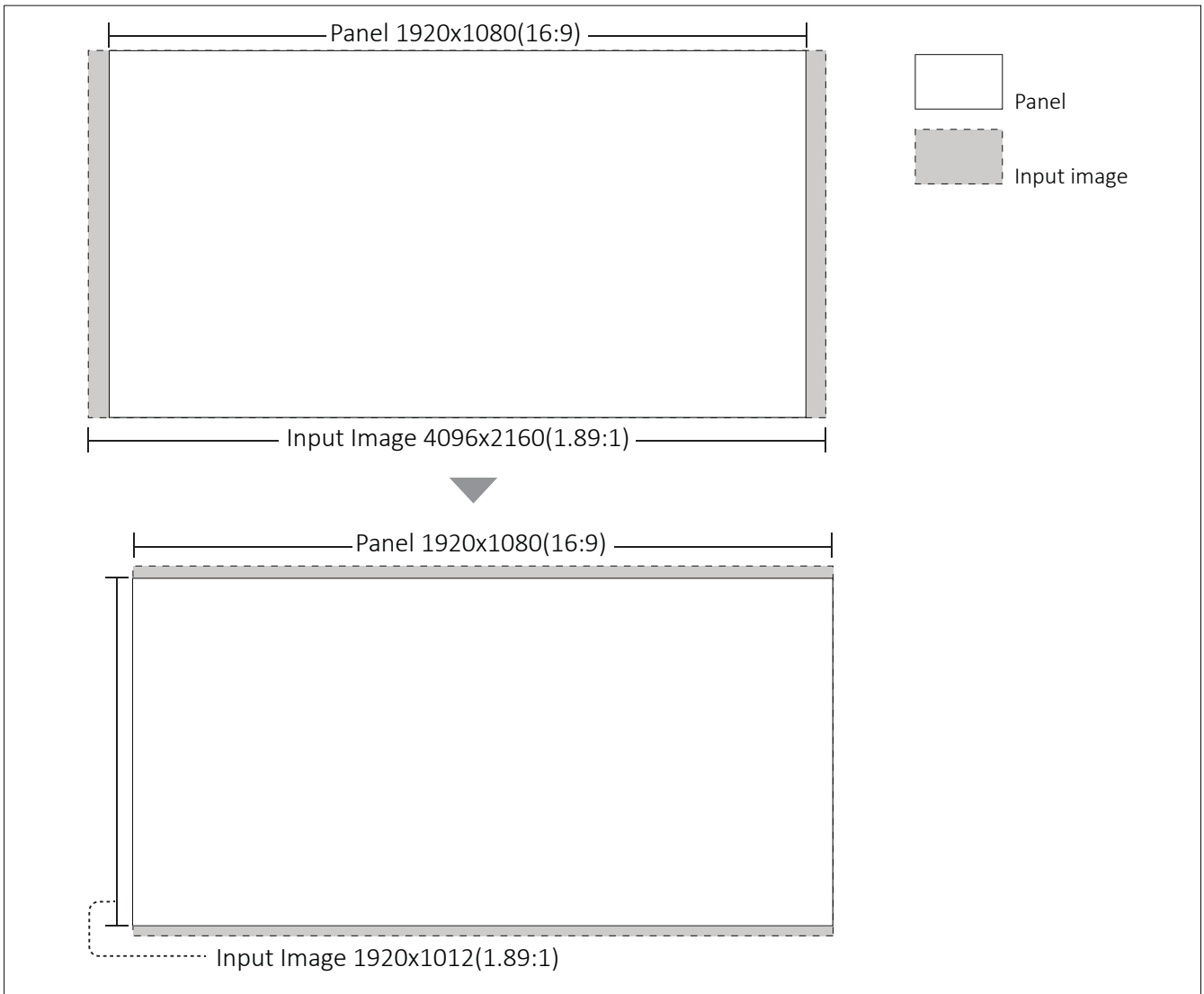
8. Connecting the SDI Signals

Single Link 12G/6G/3G/HD-SDI and Dual-Link 3G-SDI signals can be input to the SDI IN connectors of this monitor. Up to 2-channel Single Link 12-SDI signals or 1-channel Dual-Link 3G-SDI signals can be input. Use the appropriate input connectors depending on the input signal, referring to the tables below.

Single-Link 12G –SDI Signal

Connector	Input signal
12G SDI-1	12G SDI
12G SDI-2	12G SDI

Dual-Link 3G –SDI Signal
* 2-sample interleave division signals

Connector	Input signal
12G SDI-1	3G SDI Link1
12G SDI-2	3G SDI Link2

8. Available Signal Formats

This monitor is applicable to the following signal formats

HD-SDI

Signal System	Signal Format
1920x1080 / 23.98, 24, 25, 29.97, 30p/Psf, 50, 59.94, 60i	4:2:2 YCbCr 10bit
2048 x 1080 / 23.98, 24, 25, 29.97, 30p/Psf	4:2:2 YCbCr 10bit
1280x 720 / 23.98, 24, 25, 29.97, 30, 50, 59.94, 60p	4:2:2 YCbCr 10bit

3G-SDI

Signal System	Signal Format	
1920 x1080 / 50, 59.94, 60p	4:2:2 YCbCr 10bit	Level A / Level B-DL
1920 x1080 / 23.98, 24, 25, 29.97, 30p/Psf, 50, 59.94, 60i	4:4:4 RGB 10bit 4:4:4 YCbCr 10bit 4:4:4 RGB 12bit 4:4:4 YCbCr 12bit	Level A / Level B-DL
1280x 720 / 23.98, 24, 25, 29.97, 30, 50, 59.94, 60p	4:4:4 RGB 10bit 4:4:4 YCbCr 10bit	Level A
2048 x1080 / 48, 50, 60p	4:2:2 YCbCr 10bit	Level A / Level B-DL
2048 x 1080 / 23.98, 24, 25, 29.97, 30p/Psf	4:4:4 RGB 10bit 4:4:4 YCbCr 10bit 4:4:4 RGB 12bit 4:4:4 YCbCr 12bit	Level A / Level B-DL

12G-SDI

Signal System	Signal Format
3840 x2160 / 50, 59.94, 60p	4:2:2 YCbCr 10bit
4096 x2160 / 47.95, 48, 50, 59.94, 60p	4:2:2 YCbCr 10bit

Dual-Link (4K) 3G-SDI

Signal System	Signal Format	
3840 x2160 / 23.98, 24, 25, 29.97, 30p	4:2:2 YCbCr 10bit	Level B-DS 2-sample interleave division
4096 x2160 / 23.98, 24, 25, 29.97, 30p	4:2:2 YCbCr 10bit	Level B-DS 2-sample interleave division

HDMI

Signal System	
640 x 480p@59.94 / 60	4:4:4 RGB 8 / 10 / 12bit 4:4:4 YCbCr 8 / 10 / 12bit 4:2:2 YCbCr 12bit
720 x 480p@59.94 / 60	
720 x 576p@50	
1280 x 720p@50 / 59.94 / 60	
1920 x 1080i@50 / 59.94 / 60	
1920 x 1080p@23.98 / 24 / 25 / 29.97 / 30 / 50 / 59.94 / 60	
2048 x 1080p@23.98 / 24 / 25 / 29.97 / 30 / 47.95 / 48 / 50 / 59.94 / 60	
3840 x 2160p@23.98 / 24 / 25 / 29.97 / 30 / 50 / 59.94 / 60	4:4:4 RGB 8bit 4:4:4 YCbCr 8bit 4:2:2 YCbCr 12bit
4096 x 2160p@23.98 / 24 / 25 / 29.97 / 30	
800 x 600p@60	4:4:4 RGB 8 / 10 / 12bit 4:4:4 YCbCr 8 / 10 / 12bit 4:2:2 YCbCr 12bit
1024 x 768p@60	

Analog Composite

Signal System	Signal Format
487/59.94i	NTSC
576/50i	PAL
487/59.94i	PAL-M
576/50i	SECAM

Analog Component

Signal System
720 x 480i/p@59.94/60
720 x 576i/p@50
1280 x 720p@50/59.95/60
1920 x 1080i@50/59.94/60
1920 x 1080p@23.98/24/25/29.97/30/50/59.94/60

9. Key Functions

4K Waveform Monitor and Vector Scope Display
These features enable users to monitor sources using the internal Waveform and Vector Scope. Waveform Wide mode* is supported, and both Waveform and Vector Scope can be displayed simultaneously.

High Dynamic Range(HDR) Display Function
The OBM W series provides the function to display the High Dynamic Range footage.
Postium HDR function allows users to view both highlights and shadow detail of scenes at tha same time, thus resulting in more natural and realistic images.
The OBM W series supports PQ EOTF (SMPTE ST 2084), Hybrid Log Gamma and S-Log3.

HDR Mode   SDR Mode

OBM-HDR provides the function of comparing HDR and SDR(Standard Dynamic Range) on the displayed image on the OBM W series simultaneously.

Camera Log Selection
The OBM W series has the built-in camera LUT of the various camera manufacturers. It allows users to load the following camera logs.
Log-C, C-Log / S-Log2, S-Log3 / J-Log1

Closed Caption
The OBM W series can display closed captions with an SDI input. It supports the CEA-708(HD-SDI closed captioning standard) and CEA-608(SD-SDI closed
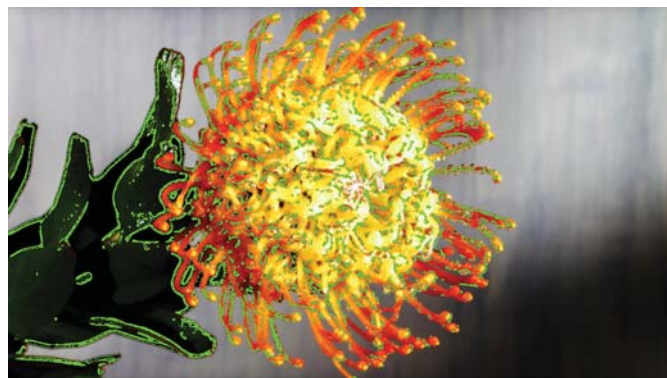
Zebra
This function displays the Luma(Y') level of the input image in zebra pattern.
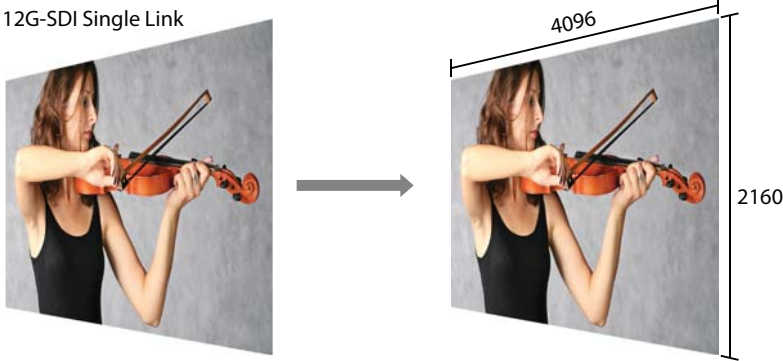

Focus Assist
This function controls the aperture level of a video signal, and displays images on screen with sharpened edges to help camera focus operation.
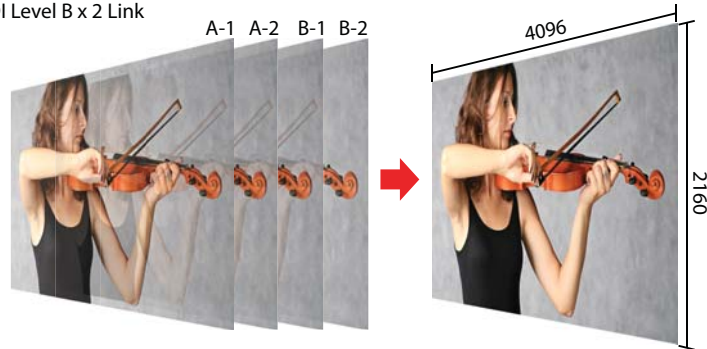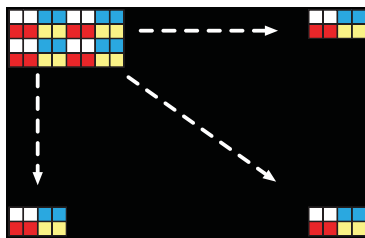
Various 4K/12G Display Modes

Single Link 12G-SDI

12G-SDI Single Link

4096

2160

Dual Link 2-Sample Interleave(2-SI)

3G-SDI Level B x 2 Link

A-1 A-2 B-1 B-2

4096

2160

(*Supported up to 2160/30p)

Adjustable Gamma

Gamma value is adjustable from 1.0 to 3.0 as user's preference to monitor in the dark area of the picture. Any pictures taken in either light or dark environment can be easily watched or analyzed.

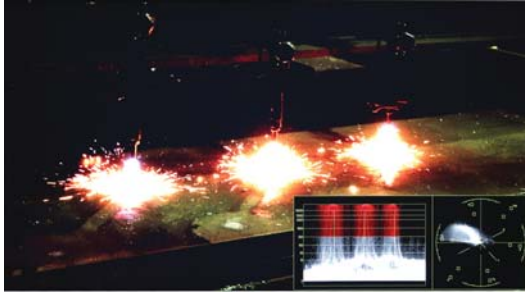Gamma 1.8   Gamma 2.4

SFP Optical Connector

The OBM W series has the SFP interface, which allows to use the various SFP modules which can fit any possible broadcast applications.

Remote Control via Ethernet

The OBM W series can be connected via Ethernet connection and controlled remotely on the network.
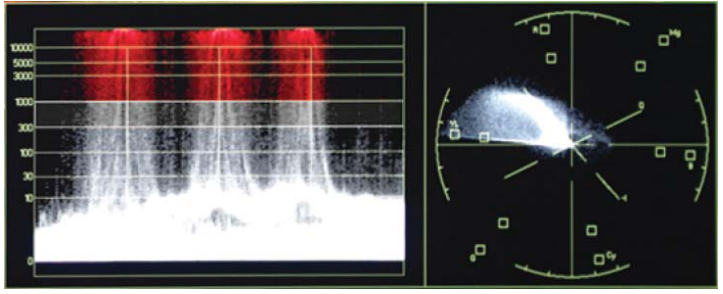
HDR Waveform

When HDR more is set on, HDR Waveform is displayed on screen.

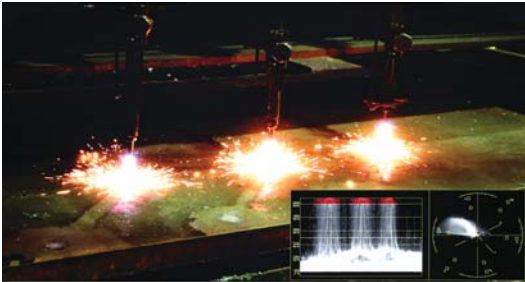HDR Mode + HDR Waveform   HDR Waveform
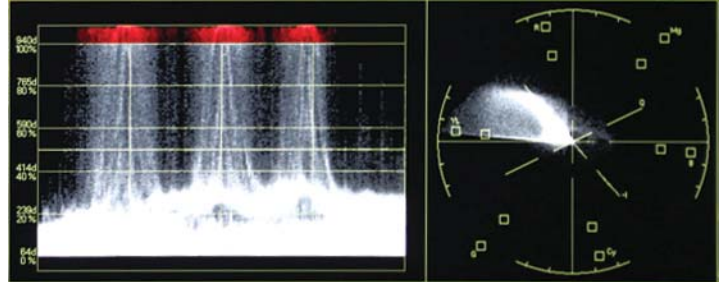

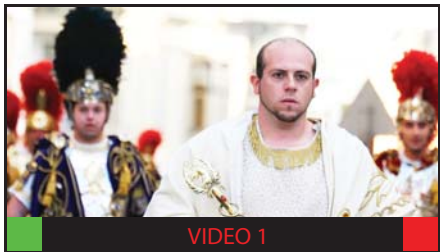SDR Mode + SDR Waveform   SDR Waveform

In-Monitor Display(IMD) Function

The image source names and tally information can be displayed on the screen, with an external remote function via Ethernet. The TSL system protocol is supported. The color of the source name and tally color can be selectable among White, Red, Green, Blue, Yellow, Cyan, Magenta.

Custom 3D LUT File Import

The OBM W series allow the user to import 3D Look-up Table for accurate and consistent color matching between indivisual displays. as well as using customized 'looks' that have been createcl by 3rd party color-grading applications. 33^³ and 65^³ cube file is supported.

Various Markers

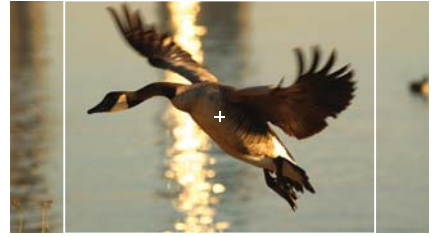The OBM W series can display various markers, including aspect marker, area marker, and center marker. In addition, the detailed display settings of each marker are allowed. For example, the color, brightness, horizontal/vertical position, and thickness of aspect markers can all be adjusted.
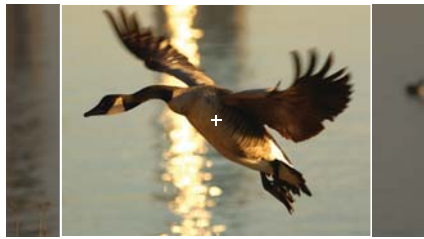

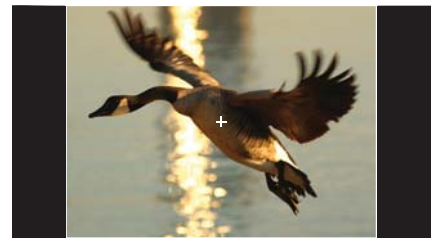Display various markers

Display Color markers

Aspect Mat 0

Aspect Mat 2

Aspect Mat 5

Aspect Mat 7

10. Product Specifications

OBM-W180 / W210 / W240

ITEM		OBM-W180	OBM-W210	OBM-W240
Input	2 x BNC	12G/6G/3G/HD/SD-SDI-1/2		
	1 x HDMI	HDMI 2.0		
	1 x SFP	Optical		
	3 x BNC (YPbPr)	Analog(YPbPr)		
	1 x BNC (CVBS)	Composite		
Output	2 x BNC	12G/6G/3G/HD/SD-SDI-1/2		
Input Signal Format	SMPTE ST 2082M	2160p(60/59.94/50)		
	SMPTE ST 2081M	2160p(30/29.97/25/24)		
	SMPTE 425M AB	1080p(60/59.94/50/30/29.97/25/24/23.98/30sF29.97sF/25sF/24sF/23.98sF) / 1080i (60/59.94/50)		
	SMPTE 274M/292M	1080i (60/59.94/50)		
		1080p(30/29.97/25/24/24sF/23.98/23.98sF)		
	SMPTE 296M	720p(60/59.94/50)		
	SMPTE 260M	1035i(60/59.94)		
	SMPTE 125M/259M	480i(60/59.94), 576i(50)		
	2K, SMPTE 428M	2048 x 1080p(24/24sF/23.98/23.98sF)		
	ITU R-BT.656	576i(50)		
	HDMI 2.0	~ 2160p(60)		
	SFP	12Gbps, 6Gbps, 2.970Gbps, 1.485Gbps, 270Mbps		
Audio In/Out	1 x Phone Jack In	Line In(Stereo)		
	1 x Phone Jack Out	H/P Out(Front, Stereo)		
	2 x Speaker Out	Stereo		
Display	Size	18.5" LCD	21" LCD	24" LCD
	Resolution	1920 x 1080 (16:9)	1920 x 1080 (16:9)	1920 x 1200 (16:10)
	Pixel Pitch	0.213mm	0.248mm	0.270mm
	Color	1.064B colors(8bit+2bit FRC)	1.064B colors(8bit+2bit FRC)	1.064B colors(8bit+2bit FRC)
	Viewing Angle	178(H), 178(V)	178(H), 178(V)	178(H), 178(V)
	Luminance of White	350cd/m²	250cd/m²	300cd/m²
	Contrast	1000 : 1	1000 : 1	1000 : 1
	Display Area (H x V)	408.96 x 230.04 (mm)	476.64 x 268.11 (mm)	518.4 x 324.0 (mm)
General	1 x Ethernet	Control/Update, RJ-45P Input / Output		
	1 x GPIO	GPI-7 Port, RJ-45P Jack		
	2 x Serial	RS-422 Jack, RJ-45P Input / Output		
	1 x USB	For Firmware Update, Color Calibration		
	Power Requirements	AC(100-230V,50/60Hz)/DC12V		
	Power Consumption	Max 40W	Max 40W	Max 40W
	Operating Temperature	0 ~ 40°C(32°F~104°F)	0 ~ 40°C(32°F~104°F)	0 ~ 40°C(32°F~104°F)
	Operating Humidity	20 ~ 80% RH	20 ~ 80% RH	20 ~ 80% RH
	Weight	6.5kg/14.33lbs	8.5kg/18.73lbs	10kg/22.04lbs
	Dimensions(with stand)	470 x 335 x 120mm	538 x 363 x 120mm	600 X 430 X 130mm
		18.50 x 13.18 x 4.72inch	21.18 x 14.26 x 4.72inch	23.62 x 16.92 x 5.11inch
	Accessories	Power Cable		
	Option	Rack Mount Kit / Carrying Case / Sun Hood / Acrylic Protector / V-Mount		

* Specifications are subject to change without prior notice for the product quality improvement.

OBM-W Series

OBM-W310 / W420

ITEM		OBM-W310	OBM-W420
Input	2 x BNC	12G/6G/3G/HD/SD-SDI-1/2	
	1 x HDMI	HDMI 2.0	
	1 x SFP	Optical	
	3 x BNC (YPbPr)	Analog(YPbPr)	
	1 x BNC (CVBS)	Composite	
Output	2 x BNC	12G/6G/3G/HD/SD-SDI-1/2	
Input Signal Format	SMPTE ST 2082M	2160p(60/59.94/50)	
	SMPTE ST 2081M	2160p(30/29.97/25/24)	
	SMPTE 425M AB	1080p(60/59.94/50/30/29.97/25/24/23.98/30sF29.97sF/25sF/24sF/23.98sF) / 1080i (60/59.94/50)	
	SMPTE 274M/292M	1080i (60/59.94/50)	
		1080p(30/29.97/25/24/24sF/23.98/23.98sF)	
	SMPTE 296M	720p(60/59.94/50)	
	SMPTE 260M	1035i(60/59.94)	
	SMPTE 125M/259M	480i(60/59.94), 576i(50)	
	2K, SMPTE 428M	2048 x 1080p(24/24sF/23.98/23.98sF)	
	ITU R-BT.656	576i(50)	
	HDMI 2.0	~ 2160p(60)	
	SFP	12Gbps, 6Gbps, 2.970Gbps, 1.485Gbps, 270Mbps	
Audio In/Out	1 x Phone Jack In	Line In(Stereo)	
	1 x Phone Jack Out	H/P Out(Front, Stereo)	
	2 x Speaker Out	Stereo	
Display	Size	32" LCD	42" LCD
	Resolution	1920 x 1080 (16:9)	1920 x 1080 (16:9)
	Pixel Pitch	0.363mm	0.484mm
	Color	1.064B colors(8bit+2bit FRC)	1.064B colors(8bit+2bit FRC)
	Viewing Angle	178(H), 178(V)	178(H), 178(V)
	Luminance of White	350cd/m²	700cd/m²
	Contrast	1200 : 1	4000 : 1
	Display Area (H x V)	698.4 x 392.85 (mm)	930.24 x 523.26 (mm)
General	1 x Ethernet	Control/Update, RJ-45P Input / Output	
	1 x GPIO	GPI-7 Port, RJ-45P Jack	
	2 x Serial	RS-422 Jack, RJ-45P Input / Output	
	1 x USB	For Firmware Update, Color Calibration	
	Power Requirements	AC(100-230V,50/60Hz)/DC24V	AC(100-240V, 50/60Hz)
	Power Consumption	Max 100W	156W
	Operating Temperature	0 ~ 40°C(32°F~104°F)	0 ~ 40°C(32°F~104°F)
	Operating Humidity	20 ~ 80% RH	20 ~ 80% RH
	Weight	28kg/61.72lbs	32kg/70.54lbs
	Dimensions(with stand)	762 x 515 x 210mm	988x640x300mm
		30 x 20.27 x 8.26inch	38.89 x 21.19 x 11.81inch
	Accessories	Power Cable	
	Option	Wall Mount Kit / Carrying Case	

* Specifications are subject to change without prior notice for the product quality improvement.

OBM-W Series

OBM-W460 / W550

ITEM		OBM-W460	OBM-W550
Input	2 x BNC	12G/6G/3G/HD/SD-SDI-1/2	
	1 x HDMI	HDMI 2.0	
	1 x SFP	Optical	
	3 x BNC (YPbPr)	Analog(YPbPr)	
	1 x BNC (CVBS)	Composite	
Output	2 x BNC	12G/6G/3G/HD/SD-SDI-1/2	
Input Signal Format	SMPTE ST 2082M	2160p(60/59.94/50)	
	SMPTE ST 2081M	2160p(30/29.97/25/24)	
	SMPTE 425M AB	1080p(60/59.94/50/30/29.97/25/24/23.98/30sF29.97sF/25sF/24sF/23.98sF) / 1080i (60/59.94/50)	
	SMPTE 274M/292M	1080i (60/59.94/50)	
		1080p(30/29.97/25/24/24sF/23.98/23.98sF)	
	SMPTE 296M	720p(60/59.94/50)	
	SMPTE 260M	1035i(60/59.94)	
	SMPTE 125M/259M	480i(60/59.94), 576i(50)	
	2K, SMPTE 428M	2048 x 1080p(24/24sF/23.98/23.98sF)	
	ITU R-BT.656	576i(50)	
	HDMI 2.0	~ 2160p(60)	
	SFP	12Gbps, 6Gbps, 2.970Gbps, 1.485Gbps, 270Mbps	
Audio In/Out	1 x Phone Jack In	Line In(Stereo)	
	1 x Phone Jack Out	H/P Out(Front, Stereo)	
	2 x Speaker Out	Stereo	
Display	Size	46" LCD	54.6" LCD
	Resolution	1920 x 1080 (16:9)	1920 x 1080 (16:9)
	Pixel Pitch	0.530 mm	0.63mm
	Color	1.073B colors(8bit+2bit FRC)	1.073B colors(8bit+2bit FRC)
	Viewing Angle	178(H), 178(V)	178(H), 178(V)
	Luminance of White	700cd/m²	700cd/m²
	Contrast	4000 : 1	4000 : 1
	Display Area (H x V)	1018.08 x 572.67 (mm)	1209.6 x 680.4 (mm)
General	1 x Ethernet	Control/Update, RJ-45P Input / Output	
	1 x GPIO	GPI-7 Port, RJ-45P Jack	
	2 x Serial	RS-422 Jack, RJ-45P Input / Output	
	1 x USB	For Firmware Update, Color Calibration	
	Power Requirements	AC(100-240V, 50/60Hz)	AC(100-240V, 50/60Hz)
	Power Consumption	220W	283W
	Operating Temperature	0 ~ 40°C(32°F~104°F)	0 ~ 40°C(32°F~104°F)
	Operating Humidity	20 ~ 80% RH	20 ~ 80% RH
	Weight	35kg/77.16lbs	37kg/81.57lbs
	Dimensions(with stand)	1074x687x300mm	1258 x 815 x 270mm
		42.28 x 27.04 x 11.81inch	49.52 x 32.08 x 10.62inch
	Accessories	Power Cable	
	Option	Wall Mount Kit / Carrying Case	

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