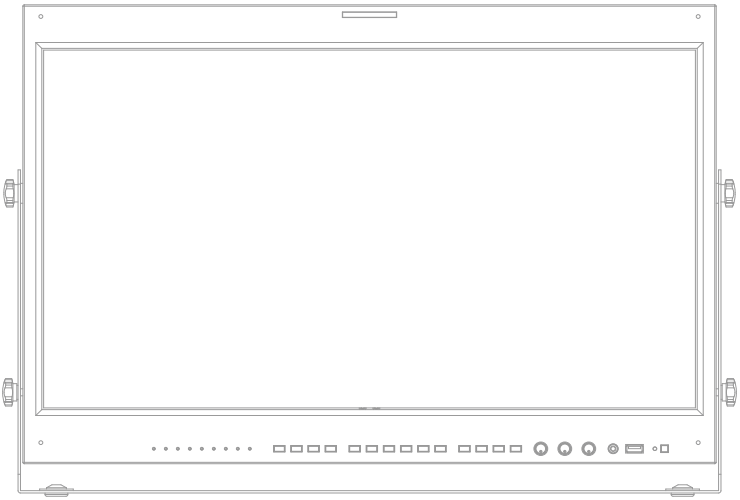


Multi Format OLED Monitor

Operation Manual_v1.4

FHD OLED Reference Monitor
LEM-250A

TVLogic Always ON-AIR

MULTI

Contents

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 interface 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 to correct the interference at his own expense

CAUTION: Change or modifications not expressly approved by the manufacturer responsible for compliance 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.

Precautions

● Pixel Defects

The OLED panel used in this monitor is manufacturered with state-of-the-art technology and has more than two million pixels or more than six million sub-pixels to reproduce the high resolution images. But, some of the pixels in the OLED screen may be stuck to show either always on (red, green, blue) or always off (black or dark). TVLogic guarantees more than 99.999% of the sub-pixels are operating normally and less than 0.001% of the sub-pixels may be defective. Some sub-pixels may spontaneously become defective after long period of time, but this is not a malfunction of the monitor.

● Burn-In

Similar to CRT or Plasma display, OLED is also a self-luminescence display and due to the characteristics of the materials used for this technology, Burn-In, Image Sticking or regional brightness reduction may occur when displaying a static image, markers, characters, overlay graphics or masked images for specific screen ratio over a certain period of time. To prevent burn-in, it is highly recommended to turn off the power of the monitor when it is not used. And displaying markers, characters, overlay graphics, static images or masked screen for more than 10 minutes are not recommended. Please turn off these functions whenever possible.

● Handling the monitor

Do not push, scratch or hit the screen which may cause damage to OLED panel or pixel defects. Do not place or use the monitor with facing the Sun or direct light with very high temperature. Using or storing the monitor in a very high temperature, a very low temperature or a very high humidity may cause damage or abnormal operation of the monitor. Please refer to the specification for operation and storage temperature. Liquids including water, rain, coffee and beverages spilled on the monitor or on the monitor screen may cause damage to the monitor or the OLED panel.

1. Caution

- **Always use set voltage.**
- **AC 100 ~ 240V (0.75~0.35A 50/60Hz)**
- **DC 24V(TYP 2.6A)**

- All operating instructions must be read and understood before the product is operated.

- These safety and operating instructions must be kept in safe place for future reference.

- All warnings on the product and in the instructions must be observed closely.

- All operating instructions must be followed.

- Do not use attachments not recommended by the manufacturer. Use of inadequate attachments can result in accidents.

- This product must be operated on a power source specified on the specification label. If you are not sure of the type of power supply used in your home, consult your dealer or local power company. For units designed to operate on batteries or another power source, refer to the operating instructions.

- The power cords must be routed properly to prevent people from stepping on them or objects from resting on them. Check the cords at the plugs and product.

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

- Never insert an object into the product through vents or openings. High voltage flows in the product, and inserting an object can cause electric shock and/or short internal parts. For the same reason, do not spill water or liquid on the product.

- 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.

- If any of the following conditions occurs, unplug the power cord from the DC outlet, and request a qualified service person to perform repairs.

  a. When the power cord or plug is damaged.
  b. When a liquid was spilled on the product or when objects have fallen into the product.
  c. When the product has been exposed to rain or water.
  d. When the product does not operate properly as described in the operating instructions. Do not touch the controls other than those described in the operating instructions. Improper adjustment of controls not described in the instructions can cause damage, which often requires extensive adjustment work by a qualified technician.
  e. When the product has been dropped or damaged.
  f. When the product displays an abnormal condition. Any noticeable abnormality in the product indicates that the product needs servicing.

- In case 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 can result in fire, electric shock and/or other danger.

- Upon completion of service or repair work, request the service technician to perform safety checks to ensure that the product is in proper operating condition.

1. Caution

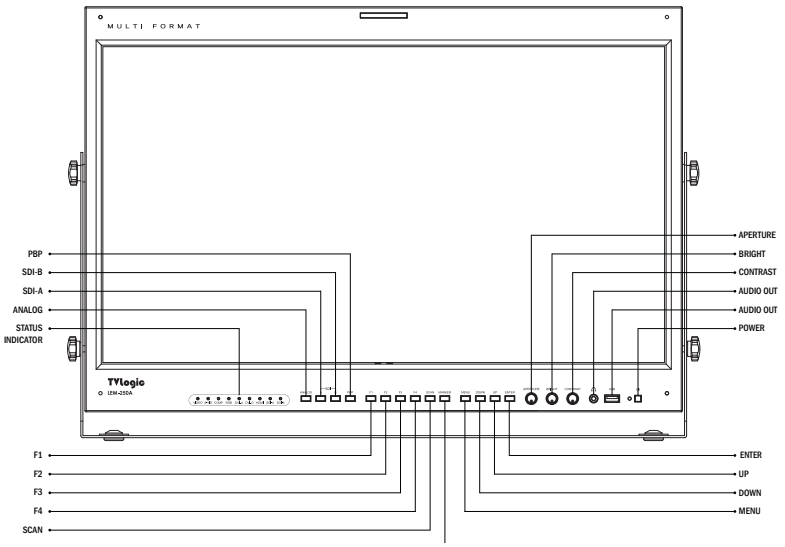
- When mounting the product on a wall or ceiling, be sure to install the product according to the method recommended by the manufacturer.
- Unplug the power cord from the DC outlet before cleaning the product. Use a damp cloth to clean the product. Do not use liquid cleaners or aerosol cleaners.
- Unplug the power cord from the AC outlet if you do not use the product for considerably long time.
- Do not use the product near water, such as bathtub, washbasin, kitchen sink and laundry tub, swimming pool and in a wet basement.
- Keep the product away from direct rays of the Sun-light.
- Do not place the product on an unstable cart, stand, tripod or table. Placing the product on an unstable base can cause the product to fall, resulting in serious personal injuries as well as damage to the product. Use only a cart, stand, tripod, bracket or table recommended by the manufacturer or sold with the product. When mounting the product on a wall, be sure to follow the manufacturer's instruction. Use only the mounting hardware recommended by the manufacturer.
- When relocating the product placed on a cart, it must be moved with the utmost care.
- Sudden stops, excessive force and uneven floor surface can cause the product to fall from the cart.
- The vents and other openings in the cabinet are designed for ventilation. Do not cover or block these vents and openings since insufficient ventilation can cause overheating and/or shorten the life of the product. Do not place the product on a bed, sofa, rug or other similar surface, since they can block ventilation openings. This product is not designed for built-in installation; do not place the product in an enclosed place such as a bookcase or rack, unless proper ventilation is provided or the manufacturer's instructions are followed.
- In case of installation the product on the rack, the inside of the product would be overheated due to heat from other devices near by and the decrease of air circulation, which could damage to the monitor. To prevent the damage, please have enough space for the monitors and use fan to avoid heat and maintain the operating temperature. (Refer to the specication of the product).
- The OLED panel used in this product is made of glass. Therefore, it can break when the product is dropped or applied with impact. Be careful not to be injured by broken glass pieces in case the OLED panel breaks.
- Keep the product away from heat sources such as radiators, heaters, stoves and other heat generating products (including amplifiers).

2. Main Features

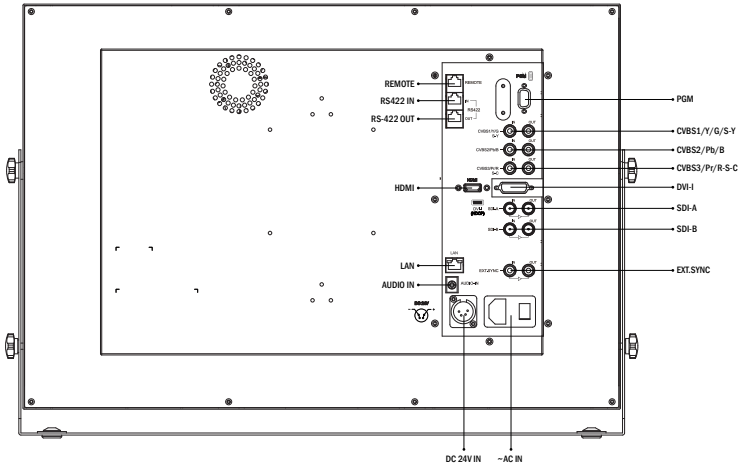
LEM-250A Monitor contains the following features :

- **Compatible with various SDI signals**
  - This product is compatible with various SDI Signals : 480i, 576i, 720p, 1080i, 1080p, 1080psF
- **Compatible with various Analog signals**
  - This product is compatible with various Analog signals - Composite, S-Video, Component, RGB, etc.
- **All-in-one type system**
  - Slim and all-in-one type monitor that requires no other accessory, for optimized space utilization.
- **Wide Screen support**
  - This product supports native 16:9 aspect ratio.
- **Remote control function**
  - This product can be remote controlled simply with cable connection without additional peripheral equipment attached to the unit.
- **DVI/HDMI(HDCP) function built-in**
  - DVI(Analog), DVI(Digital) and HDMI(w/ HDCP) inputs are available without the need of extra accessories
- **RS422/UMD feature support**
  - This product supports protocols provided by TVLogic or a TSL protocol.
- **RS232 support**
  - Supports color-calibration through serial communication.
- **Ethernet & USB support**
  - Supports Ethernet connection for program download and remote control.
  - Supports USB connection for program download.
- **Dual link support**
  - Supports Dual link YCbCr/RGB 4:4:4 and YCbCr 4:2:2 formats.
- **3G support**
  - Supports 3G A/B formats.
- **AC/DC compatible**
  - Basically, this product is powered by a normal AC source, and is also compatible with 24V DC.
- **Additional features**
  - Wide Viewing Angle, Loop Through (SDI), VESA Mounting Standard, OSD user interface and Rack Mountable, 5000:1 contrast ratio, 150cd/m^2 Luminance.

LEM-250A : FRONT



LEM-250A : REAR



3. Controls & Functions

FRONT

- **[VIDEO] lamp**
  - Used when COMPOSITE INPUT is selected.
- **[S-VID] lamp**
  - Used when S-VIDEO INPUT is selected.
- **[COMP] lamp**
  - Used when COMPONENT INPUT is selected.
- **[RGB] lamp**
  - Used when RGB INPUT is selected.
- **[DVI-A] lamp**
  - Used when DVI ANALOG INPUT is selected.
- **[DVI-D] lamp**
  - Used when DVI DIGITAL INPUT is selected.
- **[HDMI] lamp**
  - Used when HDMI INPUT is selected.
- **[SDI-A] lamp**
  - Used when SDI-A INPUT is selected.
- **[SDI-B] lamp**
  - Used when SDI-B INPUT is selected.
- **[ANALOG] button/lamp**
  - Used to select the desired Analog input. Press the Analog button to activate the analog input menu selection, then use the UP and DOWN button to select desired input.
- **[SDI-A] button/lamp**
  - Used to select SDI-A input.
- **[SDI-B] button/lamp**
  - Used to select SDI-B input.
- **[PBP] button/lamp**
  - Used to select the PBP(Picture by Picture) function.
  - Selects order of operation: PBP -> 1 by 1 -> FULL Picture in sequence.
- **[F1] (In Single Mode) button/lamp**
  - Used to activate the function.
  - The feature selected in “SYSTEM->KEY FUNCTION1” setting will be activated.
- **[F1] (In Multi Mode) button**
  - Used to select a display in Multi Mode. (Screen 1, Screen 2, Full Picture)
- **[F2] button/lamp**
  - Used to activate the function.
  - The feature selected in “SYSTEM->KEY FUNCTION2” setting will be activated.
- **[F3] button/lamp**
  - Used to activate the function.
  - The feature selected in “SYSTEM->KEY FUNCTION3” setting will be activated.
- **[F4] button/lamp**
  - Used to activate the function.
  - The feature selected in “SYSTEM->KEY FUNCTION4” setting will be activated.
- **[SCAN] button/lamp**
  - Used to change the scan mode. Press the button to move through the scan modes: OVER SCAN -> ZERO SCAN -> UNDER SCAN -> 2:1 SCAN -> 1:1 SCAN -> FIT WIDTH -> ZOOM(PBP 16:9 Mode)
- **[MARKER] button/lamp**
  - Used to activate/deactivate the Marker. The desired marker can be displayed on the screen properly when the type of marker selected from the main menu.

FRONT

- **[MENU] button**
  - Used to activate the OSD menu.
  - When the OSD menu is activated, press this button to exit from the menu.
- **[DOWN] Button**
  - Used to move down through the menus during the OSD menu activation and also to increase the value of the selected feature.
- **[UP] Button**
  - Used to move up through the menus during the OSD menu activation and also to decrease the value of the selected feature.
- **[ENTER] Button**
  - Used to confirm a chosen value (or mode).
- **[POWER] button**
  - Used to turn the power on and off.
- **[STANDBY] lamp**
  - Used to indicate the power supply status. The lamp is RED during power supply and GREEN during system is in operation. In case of power cut and sudden shut off of the power, our monitor keep previous setup stage.
- **[USB]**
  - This terminal is used to upgrade the firmware.
- **[AUDIO OUT]**
  - Used for Stereo Audio Output through Phone Jack.
- **[CONTRAST] Knob**
  - Used to adjust the contrast.
- **[BRIGHT] Knob**
  - Used to adjust the degree of brightness.
- **[APERTURE] Knob**
  - Used to adjust the picture sharpness.

3. Controls & Functions

REAR

- **[RS-232]**
  - Factory program port used for automatic alignment.
- **[CVBS1/Y/G/S-Y] (BNC)**
  - Signal input terminal used to feed the monitor COMPOSITE 1, S-VIDEO Y, COMPONENT Y and RGB G signals.
- **[CVSBS2/Pb/B] (BNC)**
  - Signal input terminal used to feed the monitor COMPOSITE 2, RGB B and COMPONENT Pb signals.
- **[CVSBS3/Pr/R/S-C] (BNC)**
  - Signal input terminal used to feed the monitor COMPOSITE 3, S-VIDEO C, COMPONENT Pr and RGB R signals.
- **[HDMI(HDCP)] (HDMI)**
  - Signal input terminal for HDMI signal.
- **[DVI-I]**
  - Signal input terminal for DVI ANALOG or DVI DIGITAL signal.
- **[SDI-A IN] (BNC)**
  - HD/SD SDI signal input terminal for SDI A.
- **[SDI-A OUT] (BNC)**
  - HD/SD SDI signal output terminal for SDI A.
- **[SDI-B IN] (BNC)**
  - HD/SD SDI signal input terminal for SDI B.
- **[SDI-B OUT] (BNC)**
  - HD/SD SDI signal output terminal for SDI B.
- **[EXT.SYNC IN/OUT]**
  - External sync signal input/output terminal for external sync.
- **[LAN]**
  - Ethernet port for easy firmware updates and remote control.
- **[AUDIO IN] (Phone Jack)**
  - External Audio in for Stereo Speaker out.
  - Select the left/right Audio disembedded signal output.
  - Used for HDMI input signal or external stereo signal output through the internal speaker or the phone jack.
- **[REMOTE] (RJ-45)**
  - Provides connection to control equipment for external monitor control.
- **[RS422 IN/OUT] (RJ-45)**
  - Used to control the monitor with protocol provided by TVLogic or to support TSL protocol.
- **[AC IN]**
  - Used to supply AC power; 100V~240V input range.
- **DC 24V IN**
  - 24V DC
- **[VIDEO INPUT]**
  - Input VIDEO connection method.

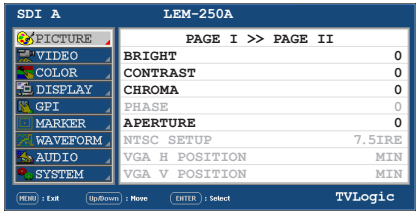
Connector	Composite	Component		S-Video
1	CVBS1	Y	G	Y
2	CVBS2	Pb	B	No Con.
3	CVBS3	Pr	R	C

<Warning!!>
When using the product make sure to ground, whenever possible, before connecting the input signal cable in order to prevent any possible damage to the product or connected devices. The damage may include signal noise, malfunction of main board or display panel. And the connected devices such as camera or video source player may also be influenced through signal cable. Please check if the AC power source and the power extender or power distributor is grounded.

4. Menu Tree & Adjustment

[1] Menu Tree

- **The product may be controlled and set system-wise through OSD displayed on the screen.**



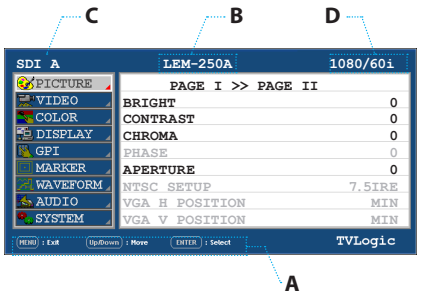
[2] Menu Control

- **You may control various functions using MENU, UP/DOWN and ENTER buttons on the bottom front of the monitor.**

[3] Menu Control Sequence

1. Press MENU button to activate the OSD menu on the screen.
2. Move to a desired sub-menu with the UP/DOWN button.
3. After selecting a sub-menu, press ENTER button to select an item with UP/DOWN button.
4. Press ENTER button to select the desired item.
   (The selected sub-menu will be highlighted.)
5. Press ENTER button to save the new value after adjusting the value with UP/DOWN button.
6. Press MENU button once to return to previous menu and if there is no previous menu, the OSD menu will be removed from the screen.
7. To view next page in the sub menu, press ENTER button at PAGE I >> PAGE II.

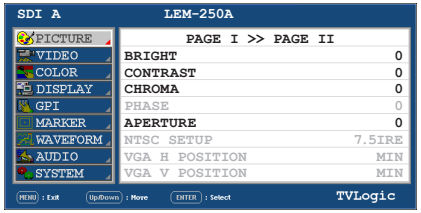
[4] Main Menu Window information



A. MENU, UP/DOWN, ENTER Button Status.
B. Model name(LEM-250A).
C. Current input signal.
D. Current input signal resolution.

5. Menu Operations

[1] PICTURE



- **BRIGHT**
  - Used to set the brightness(=offset) level from -100 to 100.

- **CONTRAST**
  - Used to set the contrast(gain) level from -100 to 100.

- **CHROMA**
  - Used to set the saturation level from -50 to 50.

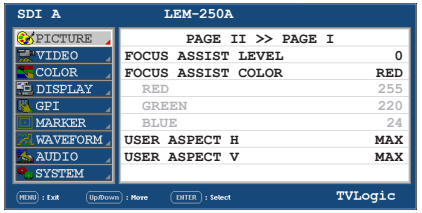
- **PHASE**
  - Used to set the phase value(hue) level from -50 to 50.
  - Is activated only in Analog signal input.

- **APERTURE**
  - Used to set the picture sharpness level from -1 to 5.

- **NTSC SETUP**
  - Used to set the black level of NTSC video to zero(0) setup or 7.5 IRE setup.
  - Is activated when NTSC video signal is input through COMPOSITE 1/2/3 or S-VIDEO terminal.

- **VGA H POSITION**
  - Used to control the horizontal position of VGA.
  - Only Available in DVI Analog mode.

- **VGA V POSITION**
  - Used to control the vertical position of VGA.
  - Only Available in DVI Analog mode.



- **FOCUS ASSIST LEVEL**
  - Used to set the edge difference value between the edges in an image.
  - Available values are from 0 to 100. Larger value means more sophisticated detail detection.
  - Designated color is displayed when the difference of the edges exceeds the previously set value.
  - This feature is available only when the Focus Assist mode is activated.

- **FOCUS ASSIST COLOR**
  - Used to select the color of FOCUS ASSIST.
  - Available values are RED, GREEN, BLUE nad USER.

- **RED**
  - Used to adjust the RED value from 0 to 255.
  - Activates only when the FOCUSS ASSIST COLOR is set to USER.

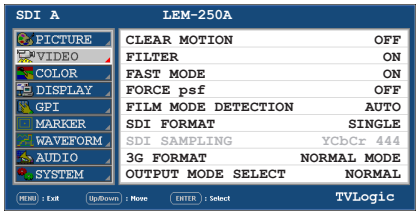
- **GREEN**
  - Used to adjust the GREEN value from 0 to 255.
  - Activates only when the FOCUSS ASSIST COLOR is set to USER.

- **BLUE**
  - Used to adjust the BLUE value from 0 to 255.
  - Activates only when the FOCUSS ASSIST COLOR is set to USER.

- **USER ASPECT H**
  - Used to set the Horizontal size of the screen.
  - Activates only when the SCAN mode is set to USER ASPECT.

- **USER ASPECT V**
  - Used to set the Vertical size of the screen.
  - Activates only when the SCAN mode is set to USER ASPECT.

[2] VIDEO



- **CLEAR MOTION**
  - When Clear Motion is set to 'ON', the monitor will show a very clear moving picture without any motion blur that is a chronic problem of Liquid Crystal Display (LCD). Instead, a CRT-like screen flicker can be witnessed to human eyes. When Clear Motion is set to 'OFF', the monitor screen will be free of flicker, but fast moving objects in the scene may show blured motion.

- **FILTER**
  - This item toggles the 4:4:4 video processing filter On/Off.
  - To eliminate ringing artifacts under 4:2:2 or 4:4:4 sources, please set this Filter to ON or OFF.

- **FAST MODE**
  - Used to minimizes the de-interlacing processing time delay and improves the quality of fast moving and fine details under interlaced format.
  - Since the function of this feature is to minimize the de-interlacing dealys, it will not be effective under progressive format.
  - Feature bypasses deinterlacer, playing back 2 full fields per frame. Also reduces signal processing delay for reduced audio/video delay.

- **FORCE PsF**
  - Used to set/define the input signal as PsF mode, overriding the automatic PsF detection.
  - When set to 'OFF', the monitor checks for the psf signal first, and then searches for the other modes

- **FILM MODE DETECTION**
  - This item toggles Film Mode ON/OFF.

- **SDI FORMAT**
  - Used to select the SDI input format between Single link and Dual link.

- **SDI SAMPLING**
  - Used to select the input SDI sampling mode in Dual link.
  - Available modes are YCbCr 4:4:4, RGB 4:4:4 and YCbCr 4:2:2P.

- **3G FORMAT**
  - Used to select the input format of SDI 3G A/B support(NORMAL MODE, A 444 10BIT_YCbCr, A 444 10BIT_RGB, A 444 12BIT_YCbCr, A 444 12BIT_RGB, A 422 12BIT_YCbCr, B 444 10/12BIT_YCbCr, B 444 10/12BIT_RGB, B 422 12BIT_YCbCr, B 422 10BIT_YCbCr, 60P).
  - Automatically detects when Payload signal appears in normal mode.

- **OUTPUT MODE SELECT**
  - Used to select the luminance range in SDI MODE between FULL(255) and NORMAL(235).

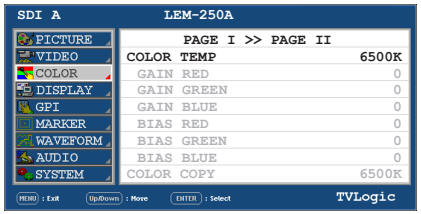
- **RGB INPUT MODE**
  - DVI-DIGITAL/HDMI MODE Selects input luminance range.
  - Available values are RGB255, RGB235Ex and RGB235.

  * RGB255 : Input : 0 ~ 255, Output : 0 ~ 255
  * RGB 235Ex : Input : 16 ~ 235, Output : 0 ~ 255
  * RGB 235 : Input : 16 ~ 235, Output : 16 ~ 235

  - Only available in HDMI/DVI DIGITAL Modes.

5. Menu Operations

[3] COLOR



- **COLOR TEMP**
  - Used to control the color temperature and allow instant access to preset color temperature settings.
  - Available values are 3200K, 5000K, 5600K, 6500K, 9300K and CUSTOM 1/2/3.
  - In CUSTOM1/2/3 mode, user can define custom RGB GAIN and BIAS values.
  - Backlight value is adjustable for each color temperature.

- **GAIN RED**
  - Used to control red color.
  - The value is selectable between Min(-256) and MAX(255).
  - Adjusts red color of bright section.
  - Only available in CUSTOM 1/2/3 mode.

- **GAIN GREEN**
  - Used to control green color.
  - The value is selectable between Min(-256) and MAX(255).
  - Adjusts green color of bright section.
  - Only available in CUSTOM 1/2/3 mode.

- **GAIN BLUE**
  - Used to control blue color.
  - The value is selectable between Min(-256) and MAX(255).
  - Adjusts blue color of bright section.
  - Only available in CUSTOM 1/2/3 mode.

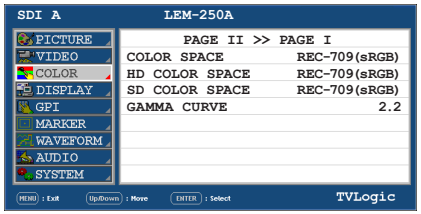
- **BIAS RED**
  - Used to adjust black level to control red color.
  - The value is selectable between Min(-100) and MAX(100).
  - Adjusts red color of dark section.
  - Only available in CUSTOM 1/2/3 mode.

- **BIAS GREEN**
  - Used to adjust black level to control green color.
  - The value is selectable between Min(-100) and MAX(100).
  - Adjusts green color of dark section.
  - Only available in CUSTOM 1/2/3 mode.

- **BIAS BLUE**
  - Used to adjust black level to control blue color.
  - The value is selectable between Min(-100) and MAX(100).
  - Adjusts blue color of dark section.
  - Only available in CUSTOM 1/2/3 mode.

- **COLOR COPY**
  - Used to copy the R/G/B Gain value of pre-stored color temperature settings.
  - In CUSTOM mode, find and select the color temperature to be used by using UP/DOWN button and press ENTER button to copy and apply the Gain Value to GAIN RED, GAIN GREEN, GAIN BLUE.
  - Only available in CUSTOM 1/2/3 mode.

[3] COLOR



- **HD COLOR SPACE**
  - Used to select color space and the mode will be changed as the following sequence : NATIVE COLOR -> LUT REC-709 -> LUT SMPTE-C -> LUT EBU -> LUT D-CINEMA -> LUT USER -> AUTO

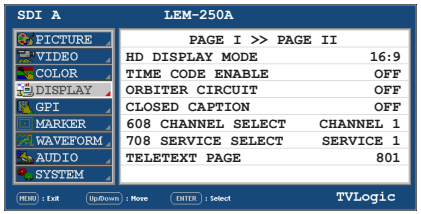
- **HD COLOR SPACE**
  - Auto Color space selection mode for HD Signal input.

- **SD COLOR SPACE**
  - Used to set the color space for the SD video signal

- **GAMMA CURVE**
  - This item is used when the user want to change the Gamma curve as wished between 1.0 and 3.0. (0.1 step increament)

5. Menu Operations

[4] DISPLAY



- **HD DISPLAY MODE**
  - Used to control the display ratio of HD mode.
  - Available values are 16:9,1.85:1 and 2.35:1.

- **TIME CODE ENABLE**
  - Used to display the Time Code.
  - Available modes are VITC, LTC and OFF.

- **ORBITER CIRCUIT**
  - Used to prevent the image sticking effect on OLED Panels when signal input is used. The user can decide the number of pixels to move.
  - The number of pixels should be within range between MIN(0) and MAX(100). Moving speed is 10 minutes per one pixel line.

- **CLOSED CAPTION**
  - Used to select Closed Caption.
  - Available modes are OFF, 708, 608(LINE21), 608(ANC), OP47 and OP42.

  * 608 : CEA-608-B, 708 : CEA-708-C standard display only

- **608 CHANNEL SELECT**
  - Used to select Closed Caption 608 channel.
  - Supports CC1~CC4.

- **708 CHANNEL SELECT**
  - Used to select Closed Caption 708 channel.
  - Supports SERVICE 1~SERVICE 6.

- **TELETEXT PAGE**
  - Used to control OP47/42 pages.

- **SCREEN SELECT**
  - Enables control for individual screens (1 or 2) or full screen (both) in PBP mode.
  - Screen selection order : ALL SCREEN -> SCREEN 1 -> SCREEN 2.
  - For easy screen selection, use the [F1] button in the front panel.

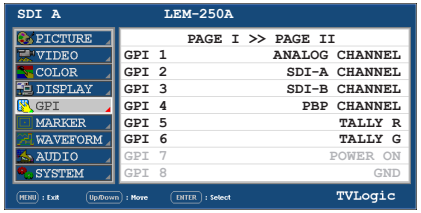
- **BORDER COLOR**
  - Used to select the border line color between the displays in PBP Mode.
  - Available values are WHITE, GRAY, BLACK, RED, GREEN and BLUE.

- **BORDER THICKNESS**
  - Used to adjust border line thickness between displays in PBP Mode.
  - Sets value range in pixel 0 ~ 7.

< Warning : Burn-In >

Similar to CRT or Plasma display, OLED is also a self-luminescence display and due to the characteristics of the materials used for this technology, Burn-In, Image Sticking or regional brightness reduction may occur when displaying a static image, markers, characters, overlay graphics or masked images for specific screen ratio over a certain period of time. To prevent burn-in, it is highly recommended to turn off the power of the monitor when it is not used. And displaying markers, characters, overlay graphics, static images or masked screen for more than 10 minutes are not recommended. Please turn off these functions whenever possible.

[5] GPI



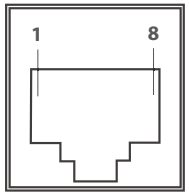
- **This product provides a REMOTE CONTROL mode. The user may connect RJ-45 jack to the REMOTE terminal on the rear of the unit and designate a function for each pin.**

- **The default settings are as follows:**
  PIN 1 : ANALOG CHANNEL
  PIN 2 : SDI-A CHANNEL
  PIN 3 : SDI-B CHANNEL
  PIN 4 : PBP CHANNEL
  PIN 5 : TALLY R
  PIN 6 : TALLY G
  PIN 7 is POWER ON/OFF use only, PIN 8 is GND

  - Use the ENTER button and UP/DOWN button to set the desired function.

REMOTE (RJ-45)

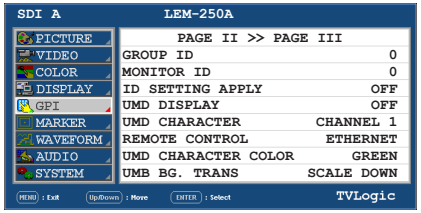
1: Pin1
2: Pin2
3: Pin3
4: Pin4
5: Pin5
6: Pin6
7: Pin7
8: GND



Menu Classification	Settable Values
PIN 1~6	NONE, ANALOG CHANNEL, SDI-A CHANNEL, SDI-B CHANNEL, PBP CHANNEL, TALLY R, TALLY G, UNDER SCAN, 1:1 SCAN, ASPECT, H/V DELAY, BLUE ONLY, MONO, 16:9 MARKER, 4:3 MARKER, 4:3 ON AIR MARKER, 15:9 MARKER, 14:9 MARKER, 13:9 MARKER, 1.85:1 MARKER, 2.35:1 MARKER, 1.85:1&4:3 MARKER, CENTER MARKER, SAFETY AREA 80%, SAFETY AREA 85%, SAFETY AREA 88%, SAFETY AREA 90%, SAFETY AREA 93%, SAFETY AREA 100%, 708, 608(LINE21), 608(ANC), OP47, OP42, TELETEXT PAGE 801, TELETEXT PAGE 888, TELETEXT PAGE 889
PIN 7	POWER ON/OFF CONTROL
PIN 8	GND

5. Menu Operations

[5] GPI



- **GROUP ID**
  - Used to control several monitors in a group for the TVLogic control protocol using RS-422/485 communication or network.

- **MONITER ID**
  - Used to set the ID of each monitor for the TVLogic control protocol or DYNAMIC UMD using RS-422/485 communication.
  - Available values are 0,2,4 ~ 98.
  - Right screen in PBP mode is automatically set to +1 of the monitor ID.

- **ID SETTING APPLY**
  - Used to set the unit's GROUP ID and MONITOR ID which are set above menus.

- **UMD DISPLAY (Under Monitor Display)**
  - Used to set input source ID mode.
  - Available modes are UMD, ANC, D-UMD(S-8C), D-UMD(S-16C), D-UMD(D-8C) and OFF.
  - If UMD menu is selected, characters or tally data in the black bar displays on the bottom of the screen. The vertical aspect ratio of the image changes on the screen as the bar on the bottom of screen appears.
  - In the USER ASPECT mode, the UMD bar displays semi-transparently and the screen keeps its USER ASPECT ratio.
  * UMD : Displays user customized 8 characters on screen.
  * ANC : Displays characters embedded in SDI signal.
  * D-UMD(S-8C) : Displays incoming data of 8 characters and tally signal from TSL protocol (V3.1).
  * D-UMD(S-16C) : Displays incoming data of 16 characters and tally signal from TSL protocol (V3.1).
  * D-UMD(D-8C) : Displays incoming data of two pairs of 8 character strings and tally signals from TSL protocol (V3.1).
  - In PBP mode, even if D-UMD(S-8C), D-UMD(S16C) and D-UMD(D-8C) are selected, only D-UMD (S-8C) activates.
  - In PBP mode, each D-UMD(S-8C) for left screen and right screen are activated.
  - Adjustments for each setting are available.

- **UMD CHARACTER**
  - Used to customize the characters for UMD.
  - Alphabets, numbers and special symbols are available.
  - Maximum of 8 characters are available.

- **REMOTE CONTROL**
  - Used to choose how to adjust the monitor. (Ethernet or RS-422)

- **UMD CHARACTER COLOR**
  - Used to set the character color of UMD.
  - Available colors are WHITE, RED, GREEN, BLUE, YELLOW, CYAN and MAGENTA.

- **UMD BG. TRANS**
  - Used to set the transparency of the UMD background.
  - Available values are SCALE DOWN, OPAQUE, 50%, 90% and 100%.

< Warning : Burn-In >

Similar to CRT or Plasma display, OLED is also a self-luminescence display and due to the characteristics of the materials used for this technology, Burn-In, Image Sticking or regional brightness reduction may occur when displaying a static image, markers, characters, overlay graphics or masked images for specific screen ratio over a certain period of time. To prevent burn-in, it is highly recommended to turn off the power of the monitor when it is not used. And displaying markers, characters, overlay graphics, static images or masked screen for more than 10 minutes are not recommended. Please turn off these functions whenever possible.

[5] GPI

<Dynamic UMD Protocol (TSL V3.1)>

* Transmission (18 Byte) (PC or Device -> Monitor)

HEADER (1 BYTE)	CONTROL BYTE(1 BYTE)	DISPLAY DATA (16 BYTE)

* **[HEADER]** : Display address (0~126) + 80 hex.
* **[CONTROL BYTE]**
  - **bit 0 : Tally 1 (1=on, 0=off)**
  - **bit 1 : Tally 2 (1=on, 0=off)**
  - **bit 2 : Tally 3 (1=on, 0=off)**
  - **bit 3 : Tally 4 (1=on, 0=off)**
  - bit 4 : bright data (Not used)
  - bit 5 : bright data (Not used)
  - bit 6 : reserved (Not used)
  - bit 7 : cleared to 0 (Not used)
* **[DISPLAY DATA]** : 16 displayable ASCII characters.

5. Menu Operations

[5] GPI

● **Tally Type - Default**

- S-8C(Single 8 Character) & S-16C(Single 16 Character)

Bit 1 (Tally2)	Bit 1 (Tally1)	Operation
0	0	CHANNEL1
0	1	CHANNEL1
1	0	CHANNEL1
1	1	CHANNEL1

- D-8C(Dual 8 Character)

Bit 1 (Tally4)	Bit 1 (Tally3)	Operation
0	0	CHANNEL1
0	1	CHANNEL1
1	0	CHANNEL1
1	1	CHANNEL1

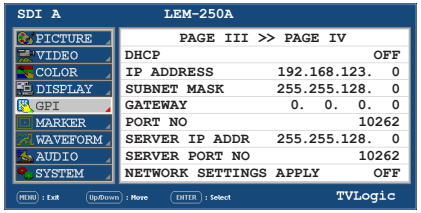
● **D-UMD TALLY TPYE – USER COLOR**

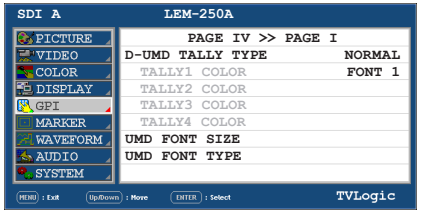
- Color selections between TALLY1 ~ TALLY4.

The following appearance of UMD DISPLAY is set as D-UMD(D-8C), D-UMD TALLY TYPE and TALLY1 ~ TALLY4 COLOR.

D-UMD TALLY TYPE	USER COLOR
TALLY1 COLOR	RED
TALLY2 COLOR	GREEN
TALLY3 COLOR	RED
TALLY4 COLOR	YELLOW

[5] GPI





- **DHCP**
  - Used to control the DHCP function.

- **IP ADDRESS**
  - Used to set the IP address connected to the Monitor.

- **SUBNET MASK**
  - Used to set the SUBNET MASK connected to the Monitor.

- **GATEWAY**
  - Used to set the GATEWAY connected to the Monitor.

- **PORT NO**
  - Used to set the port number. Default port number is 10262.

- **SERVER IP ADDR**
  - Used to set the IP address of TVLogic's Controller (RMU Series).

- **SERVER PORT NO**
  - Used to set the port number of TVLogic's Controller (RMU Series).

- **NETWORK SETTING APPLY**
  - Use to apply changed value of IP ADDRESS, SUBNET MASK, GATEWAY, PORT NO and so on.

- **D-UMD TALLY TYPE**
  - Tally type configuration setting in D-UMD(D-8C), UMD Display.
  - Configuration values are DEFAULT, USER COLOR, CHARCTER, BG .COLOR, USER TALLY, USER CHAR and USER BG.
  - TALLY1 COLOR ~ TALLY4 COLOR are activated when USER COLOR is selected.

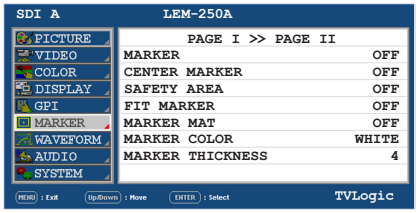
- **TALLY1 COLOR / TALLY2 COLOR / TALLY3 COLOR / TALLY4 COLOR**
  - Used to set the color of each TALLY 1, TALLY 2, TALLY 3 and TALLY 4.
  - Available colors are RED, GREEN and YELLOW.

- **UMD FONT SIZE**
  - This function adjusts the size of UMD FONT.
  - Available modes are SMALL, NORMAL and LARGE.

- **UMD FONT TYPE**
  - This function sets the Type of UMD FONT.
  - Available font types are FONT 1, FONT 2 and FONT 3.

5. Menu Operations

[6] MARKER



- **MARKER**
  - Used to select the marker type when the MARKER is displayed on the screen.
  - Activates only by pressing the MARKER button on the front of the monitor.
  - Compatible MARKER types are as follows:

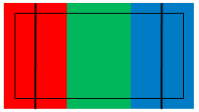
MODE	MARKER CLASS
HD	16:9, 4:3, 4:3 ON AIR, 15:9, 14:9, 13:9, 1.85:1, 2.35:1, 1.85:1 & 4:3, 4:3 ALT 16:9, 16:9 ALT 14:9, 16:9 ALT 4:3, AFD, USER
SD 16:9	
SD 4:3	16:9, 4:3, 4:3 ON AIR, 15:9, 14:9, 13:9, 1.85:1, 2.35:1, 1.85:1 & 4:3, 4:3 ALT 16:9, 16:9 ALT 14:9, 16:9 ALT 4:3, AFD, USER

* AFD(Active Format Description) : If AFD is selected, the embedded Aspect ratio signal in the video signal will be extracted and displayed as a marker.

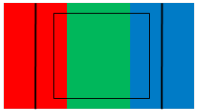
- **CENTER MARKER**
  - Used to display the CENTER MARKER on the screen. This function operates only after activating the MARKER function by pressing the MARKER button on the front of the monitor.

- **SAFETY AREA**
  - Used to select to display and control the size of the SAFETY AREA.
  - Available types are 80%, 88%, 90%, 93%, 100%, EBU ACTION 16:9, EBU GRAPHIC 16:9, EBU ACTION 14:9, EBU GRAPHIC 14:9, EBU ACTION 4:3 and EBU GRAPHIC 4:3.
  - This function operates only after activating the MARKER function by pressing the MARKER button on the front of the monitor.

- **FIT MARKER**
  - Used to activate the FIT MARKER function.
  - With FIT MARKER "ON", the safety area is displayed relative to the marker in use. With FIT MARKER "OFF", the safety area is displayed relative to the incoming source.
  - FIT MARKER ON/OFF displays as shown below.



- MARKER : 4:3
- SAFETY AREA : 90%
- FIT MARKER : OFF



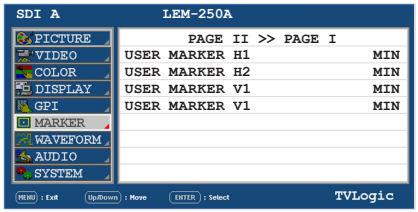
- MARKER : 4:3
- SAFETY AREA : 90%
- FIT MARKER : ON

- **MARKER MAT**
  - This item darkens the area of the outside of MARKER setting area. The degree of darkness is between OFF(Transparency) and 7(Black). The higher the number, the darker MARKER border becomes.

- **MARKER COLOR**
  - Used to control the color of MARKER lines.
  - Available colors are WHITE, gray, black, red, green and blue.

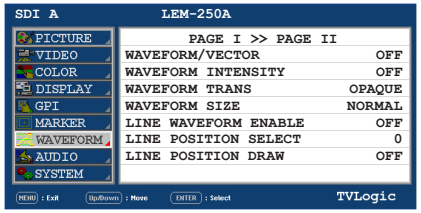
- **MARKER THICKNESS**
  - This item controls the thickness of the MARKER lines. The degrees of thickness are between 1 and 7.

[6] MARKER



- **USER MARKER H1**
  - Used to control the position of the first user defined horizontal marker line.
  - Marker option USER needs to be selected.
- **USER MARKER H2**
  - Used to control the position of the second user defined horizontal marker line.
  - Marker option USER needs to be selected.
- **USER MARKER V1**
  - Used to control the position of the first user defined vertical marker line.
  - Marker option USER needs to be selected.
- **USER MARKER V2**
  - Used to control the position of the second user defined vertical marker line.
  - Marker option USER needs to be selected.

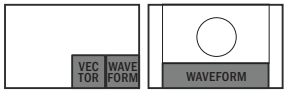
[7] WAVEFORM



- **WAVEFORM/VECTOR**
  - Used to set the Waveform and Vectorscope.
  - This feature is available in SDI, COMPOSITE 1/2/3, S-VIDEO, COMPONENT modes.
  - Selectable features: OFF, WAVEFORM, VECTOR, YCbCr, MODE 1(WAVEFORM + VECTORY), MODE 2(VECTOR + Y/Cb/Cr), WIDE-Y
  - Displays on the bottom right of the screen and moves above the UMD, if UMD feature is selected.

  * WAVEFORM : Displays the shape and form of luminance level of a signal.
  * VECTOR : Displays color components B-Y and R-Y of the input signals on the XY axis. HD and SD inputs are classified into two kinds, depending on the input. 100% and 75% scales indicated on a display.
  * Y/Cb/Cr : Displays each Waveform for elements of the luminance and Cb/Cr of the input signal.
  * RGB : Displays each Waveform for elements of the Red, Green and Blue of the input signal.
  * W+V : Displays waveform and vector scope simultaneously.
  * WIDE-Y : Stretches the waveform to fit width of the screen and displays it on the bottom of the screen.

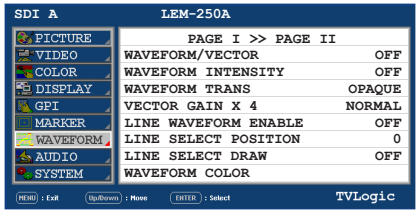
<WAVEFORM> <VECTOR> <YCbCr/RGB>



<WAVE+VECTOR> <WIDE Y>

5. Menu Operations

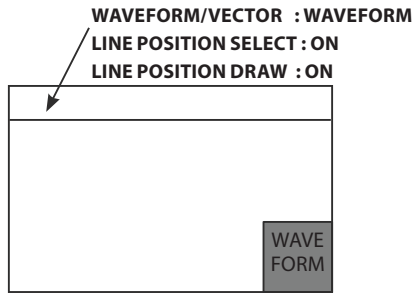
[7] WAVEFORM



- **WAVEFORM INTENSITY**
  - Used to control the brightness of the WAVEFORM/VECTOR display.
  - Available values are between 0 ~ 30. The higher the number the brighter the Waveform will be.
- **WAVEFORM TRANS**
  - Used to control the transparency level of the WAVEFORM/VECTOR.
  - Available values are OPAQUE and TRANS.

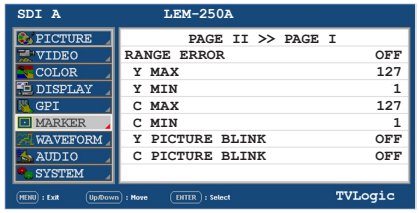
  * If the option is set to OPAQUE, the main OSD will overlap with the WAVEFORM/VECTOR. However, it will automatically display it as transparent and goes back to opaque if the main OSD disappears.
- **VECTOR GAIN X4**
  - Used to increase the value of the Vectorscope.
- **LINE SELECT ENABLE**
  - Used to select specific Vertical Line for Waveform/Vectorscope.
- **LINE SELECT POSITION**
  - In WAVEFORM/VECTOR, use the Up/Down button to select User's desired line.
- **LINE SELECT DRAW**
  - ON/OFF the line indication for line select feature.
  - Activates only when the LINE SELECT ENABLE feature is enabled.
  - When this item is set to OFF, the Line Waveform still displays if LINE WAVEFORM is enabled.

Position changes if the value changes in LINE SELECT option and the waveform of the selected position displays.



- **WAVEFORM COLOR**
  - This item cselects the color of Waveform/ Vectorscope.
  - Available options are WHITE and Green.

[7] WAVEFORM



- **RANGE ERROR**
  - Used to display the values of Y MAX, Y MIN, C MAX, C MIN, Y PICTURE BLINK and C PICTURE BLINK on the screen.
  - Selected values in Y MAX, Y MIN, C MAX, C MIN are indicated in WAVEFORM/VECTOR or Y/Cb/Cr.
  - If Y PICTURE BLINK or C PICTURE BLINK is enabled, the section of image that exceeds the selected values of Y MAX, Y MIN, C MAX and C MIN blinks.

  * In the case of RGB input, Range Error is not supported.

- **Y MAX**
  - Used to set the maximum luma(Y') level from 1 to 254.
  - Pixels with values exceeding the max Y' level will blink in the screen, and display in red on the Waveform.

- **Y MIN**
  - Used to set the minimum luma(Y') level from 1 to 254.
  - Pixels with values exceeding the min Y' level will blink in the screen, and display in red on the Waveform.

- **C MAX**
  - Used to set the maximum chroma(C') level from -127 to 126.
  - Pixels with values exceeding the min C' level will blink in the screen, and display in red on the Waveform.

- **C MIN**
  - Used to set the minimum chroma(C') level from -127 to 126.
  - Pixels with values exceeding the min C' level will blink in the screen, and display in red on the Waveform.

- **Y PICTURE BLINK**
  - Used to trigger selections of image that exceeds Y MAX and Y MIN to blink.

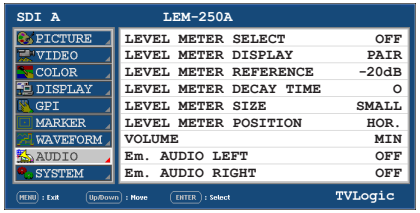
- **C PICTURE BLINK**
  - Used to trigger selections of image that exceeds C MAX and C MIN to blink.

< Warning : Burn-In >

Similar to CRT or Plasma display, OLED is also a self-luminescence display and due to the characteristics of the materials used for this technology, Burn-In, Image Sticking or regional brightness reduction may occur when displaying a static image, markers, characters, overlay graphics or masked images for specific screen ratio over a certain period of time. To prevent burn-in, it is highly recommended to turn off the power of the monitor when it is not used. And displaying markers, characters, overlay graphics, static images or masked screen for more than 10 minutes are not recommended. Please turn off these functions whenever possible.

5. Menu Operations

[8] AUDIO



- **LEVEL METER SELECT**
  - Used to control the Embedded Audio Level Meters.
  - Available modes are OFF, G1+G2, G2+G3, G3+G4, G1+G3, G1+G4,G2+G4 and 16CH.
  - If Main Menu window activates, the level meter displays semi-transparent even if [LEVEL METER SIZE] menu is set to Normal. It returns to normal when the Main Menu window is deactivated.

- **LEVEL METER DISPLAY**
  - Used to control display method of Audio Level Meters.
  - Available modes are Pair and Group.

- **LEVEL METER REFERENCE**
  - Used to set audio level default.
  - Available values are -18dB and -20dB.
  - Audio within selected value is displayed in green and exceeded audio level is displayed in yellow.
  - Audio exceeding -4dB is displayed in red.

- **LEVEL METER DECAY TIME**
  - Used to set the reduction time of the maximum indication of audio signals.
  - Available values are form 0 to 31. Larger values indicate a longer time to display.

- **LEVEL METER SIZE**
  - Used to control the size of the Audio Level Meters.
  - Available modes are SMALL, SMALL TRANS, NORMAL, NORMAL TRANS, LARGE and LARGE TRANS.
  - In SMALL, NORMAL and LARGE modes, the Audio Level Meter appears opaque.
  - In SMALL TRANS., NORMAL TRANS and LARGE TRANS modes, the Audio Level Meter appears semitransparent.

- **LEVEL METER POSITION**
  - Used to control the position of the Audio Level Meters.
  - Available values are HOR, VER and BOT.

  *16 CH(HOR.): Displays each 8 channel audio level meter horizontally on top left and right.

  *16 CH(VER.) : Displays each 8 channel audio level meter vertically on center left and right.

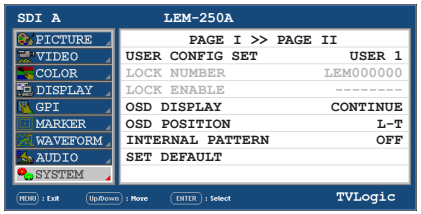
  *16 CH(BOT.) : Displays each 8 channel audio level meter vertically on bottom left and right.

- **VOLUME**
  - Used to control the embedded audio output volume for the internal speakers of the monitor.
  - Available values are between 0 ~ 30.

- **Em. AUDIO LEFT**
  - Used to control embedded audio channel for left audio out of internal speaker and [AUDIO OUT] in the back of the monitor.
  - In HDMI mode, HDMI audio output.
  - Available values are OFF, CH 1 ~ CH 16 and Ext.

- **Em. AUDIO RIGHT**
  - Used to control embedded audio channel for right audio out internal speaker of the monitor.
  - In HDMI mode, HDMI audio output.
  - Available values are OFF, CH 1 ~ CH 16 and Ext.

[9] SYSTEM



- **USER CONFIG SET**
  - Used to save and apply three kinds of user configuration.
  - Available modes are USER1, USER2 and USER3.
  - Assignable items for each USER1, USER2 and USER3 settings are the [MARKER] menu of MARKER, CENTER MARKER, SAFETY AREA, MARKER MAT and MARKER COLOR, the [PICTURE] menu of BRIGHT, CONTRAST, CHROMA, PHASE and APERTURE.

- **LOCK NUMBER**
  - Lock number is product's serial number.

- **LOCK ENABLE**
  - Factory use only.

- **OSD DISPLAY**
  - Controls the OSD display time.
  - Available values are 3 SEC, 20 SEC and CONTINUE.

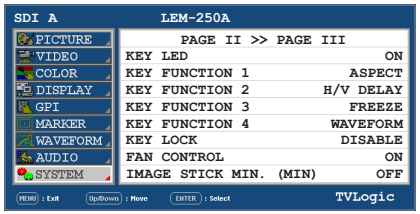
- **OSD POSITION**
  - Controls the OSD position.
  - Available positions are Center, Right-Top(T-R), Bottom-Right(R-B), Top-Left(L-T) and Bottom-Left(L-B).

- **INTERNAL PATTERN**
  - This item generates internal white pattern.
  - The white level select between 0% and 100% (Per 5% increase or decrease)

- **SET DEFAULT**
  - User can use SET DEFAULT menu to initialize to factory setting.
  - Initializes the values to 0 of BRIGHT, CONTRAST, CHROMA, PHASE and APERTURE of the monitor.

5. Menu Operations

[9] SYSTEM



- **KEY LED**
  - This item controls KEY LED ON/OFF.
  - If the button with LED is pressed with the KEY LED Off, LED comes on but goes off after 5 seconds later.

- **KEY FUNCTION 1**
  - User can select the function for [F1] button.
  - Selectable functions: ASPECT, H/V DELAY, FREEZE, WAVEFORM, TIMECODE, CC SEL, ALM SEL., OUTPUT MODE, FAST MODE, FILTER, FORCE Psf, UMD, COLOR TEMP, BLUE ONLY, PAGE 801, PAGE 888 and PAGE 889.

- **KEY FUNCTION 2**
  - User can select the function for [F2] button.
  - Selectable functions: ASPECT, H/V DELAY, FREEZE, WAVEFORM, TIMECODE, CC SEL, ALM SEL., OUTPUT MODE, FAST MODE, FILTER, FORCE Psf, UMD, COLOR TEMP, BLUE ONLY, PAGE 801, PAGE 888 and PAGE 889.

- **KEY FUNCTION 3**
  - User can select the function for [F3] button.
  - Selectable functions: ASPECT, H/V DELAY, FREEZE, WAVEFORM, TIMECODE, CC SEL, ALM SEL., OUTPUT MODE, FAST MODE, FILTER, FORCE Psf, UMD, COLOR TEMP, BLUE ONLY, PAGE 801, PAGE 888 and PAGE 889.

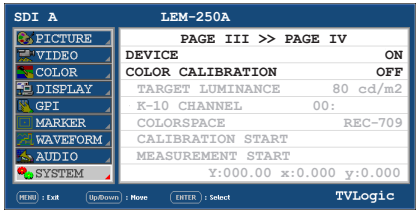
- **KEY FUNCTION 4**
  - User can select the function for [F4] button.
  - Selectable functions: ASPECT, H/V DELAY, FREEZE, WAVEFORM, TIMECODE, CC SEL, ALM SEL., OUTPUT MODE, FAST MODE, FILTER, FORCE Psf, UMD, COLOR TEMP, BLUE ONLY, PAGE 801, PAGE 888 and PAGE 889.

- **KEY LOCK**
  - This item locks all buttons on the front panel except power, input select, and menu buttons.

- **FAN CONTROL**
  - This item toggles Fan Operation Control ON/OFF.

- **IMAGE STICK MIN. (MIN)**
  - This item minimizes the image sticking by reducing the screen brightness by 50% when the video is stopped based on this set value (in minutes).
  - Value Range: Steps of 5 minutes increment from OFF ~ 30 minutes.

[9] SYSTEM



- **DEVICE**
  -Used to select the device for color calibration.

- **COLOR CALIBRATION**
  - Connect the COLOR PROBE(e.g. K-10) to the USB port to calibrate the monitor without a PC.
  * Refer to the section “Firmware Upgrade & Color Calibration” for more information.

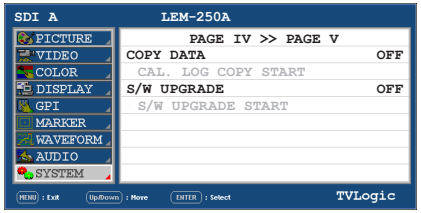
- **TARGET LUMINANCE**
  - Used to set the luminance.

- **K-10 CHANNEL**
  - Used to select the channel of COLOR PROBE(K-10)

- **COLORSPACE**
  - Used to select the color space which will be calibrated.

- **CALIBRATION START**
  - Used to start the calibration.
  - Set the Color Calibration as [On]. The Color calibration start menu will activate after the USB connection is completed.

- **MEASUREMENT START**
  - Used to start the measurement.
  - Set the Color Calibration as [On]. The Color calibration start menu will activate after the probe connection is completed.



- **COPY DATA**
  - Used to copy the files related to the calibration.

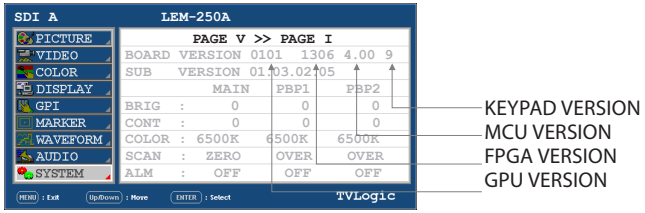
- **CAL. LOG COPY START**
  - Used to save the CALIBRATION LOG file on a USB drive.
  * Set the COPY DATA as [On]. Activates only when the USB drive(Thumb drive) is connected.

- **S/W UPGRADE**
  - Used to upgrade the firmware using the USB (Thumb drive).
  * See section “Firmware Upgrade & Color Calibration” for more information.

- **S/W UPGRADE START**
  - Used to start S/W upgrade. If the USB drive is detected, the firmware upgrade becomes activated.

5. Menu Operations

[9] SYSTEM

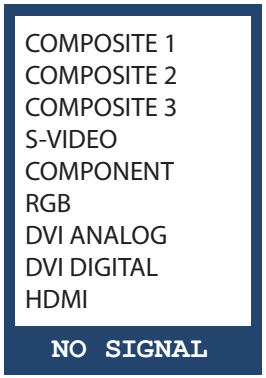


- **INFOMATION**
  - Displays board version and current status information.

[1] ANALOG Button

- **This product is capable of processing all input signals usable in ANALOG mode. The ANALOG input settings are as follows:**

1. Press SOURCE button on the front of the product and activate the menu below.



2. Use the UP/DOWN button to select desired input source and press the ENTER button to confirm.
3. Input signal resolution displays on the bottom of OSD menu.
4. Press SOURCE button again to remove the OSD menu from display.
5. Menu will be disappeared when time set is over from the screen

<Warning!!>
When using SOURCE mode, always check the input method and modify the setting as needed for optimized output results.

6. Other Functions

[2] ASPECT

1. Four different aspect modes are available.
   When input signal is SDI -A/B, Composite 1/2/3 and Input Signal Format is SD :
   1) 4:3 mode : Cuts left and right of the original image to fit to 4:3 aspect ratio.
   2) 16:9 mode : Stretches the image in "1) 4:3 mode" to fit to 16:9 aspect ratio.
   3) 4:3Ex : Extends the image vertically without altering the source image.
   4) 16:9Ex : Stretches the image in "3) 4:3 mode(extend)" to fit to 16:9 aspect ratio.
   NTSC and PAL signals are known to be 4:3 aspect ratio signals, but their aspect ratio is not exactly 4:3. Therefore, select "1) 4:3 mode)
   to display the exact 4:3 aspect ratio, select "3) 4:3 mode (extend)" to display the image without altering the source image.
   * ASPECT button lamp status: 1 - 1)/3) Off, 2 - 2)/4) : On.

2. When input signal is COMPOSITE 1/2/3, S-VIDEO, RGB, DVI ANALOG, DVI DIGITAL or HDMI mode, all "1 – 1),2),3),4)" display the image in 4:3 and 16:9 without altering the source image.

3. For the above aspect modes, ZERO SCAN is the standard scan mode. And, in the other scan modes, aspect ratio changes using the image in its selected scan mode.

[3] SCAN

- **This product supports various scan modes.**
- **Press [SCAN] button on the front of the monitor to activate different scan modes.**

1. Press [SCAN] button continuously to activate various scan modes.
   - OVER SCAN -> ZERO SCAN -> UNDER SCAN -> 2:1 SCAN -> 1:1 SCAN -> FIT WIDTH -> USER ASPECT

2. Scan mode types are differed by connected signal.
   - SDI, COMPONENT, RGB : OVER SCAN -> ZERO SCAN -> UNDER SCAN -> 2:1 SCAN -> 1:1 SCAN -> FIT WIDTH -> USER ASPECT
   - DVI ANALOG, DVI DIGITAL, HDMI : OVER SCAN -> ZERO SCAN -> 2:1 SCAN -> 1:1 SCAN -> USER ASPECT
   - COMPOSITE 1/2/3, S-VIDEO : OVER SCAN -> ZERO SCAN -> 2:1 SCAN -> 1:1 SCAN -> USER ASPECT

[3] SCAN

3. The following represents the different types of scan mode. When a scan mode is selected, display skips the next mode if its required condition is not met.

- OVER SCAN : Zooms in/out of the image to 96% of its original size without changing the aspect ratio of.

- ZERO SCAN : Zooms in/out of the image without changing the aspect ratio.

- UNDER SCAN : Zooms in/out of the image without changing the aspect ratio. Also, displays the data at the top of the horizontal blanking block.

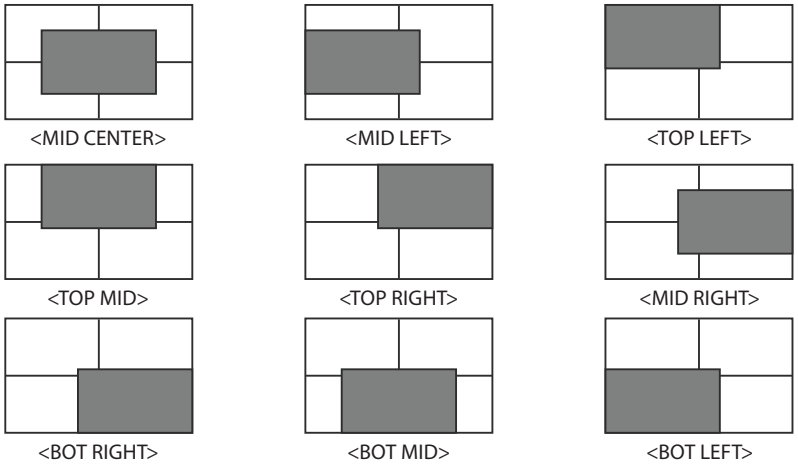
- 2:1 SCAN : Magnifies the original image two times. This feature is available only when the size of the original image is ½ size or smaller than the screen size.

- 1:1 SCAN : 1:1 pixel mapping of original image. This feature is available only when the size of the original image is bigger than the screen size. Press [ENTER] button to rotate the position.
MID LEFT -> TOP LEFT -> TOP MID -> TOP RIGHT -> MID RIGHT -> BOT RIGHT -> BOT MID -> BOT LEFT

- FIT WIDTH : In SD mode, zooms in to fit width of the original image to the width of the screen without changing the aspect ratio.

- USER ASPECT : Displays in user aspect ratio of HORIZONTAL and VERTICAL value that is selected under USER ASPECT item in [PICTURE] MENU.

- 3 X ZO O M : This feature is only available under PBP 16:9 mode and displays the image with 2 x zoom in.
When "3 X ZOOM" message window appears, press [ENTER] button to activate vertical position control of image. Use [UP]/[DOWN] button to adjust the vertical position of image. Press [ENTER] button again to activate horizontal position control of image. Use [UP]/[DOWN] button to adjust the horizontal position of image.



<Position change in 1:1 SCAN>

6. Other Functions

[4] PBP MODE USAGE

1. Press PBP button to activate the PBP function. Then the two images will be displayed in the monitor. In Normal Screen (when an individual screen is not selected in PBP mode), key function and OSD function apply for two images simultaneously.

<PBP> <1:1(FULL PICTURE)>

** PBP: Picture-by-Picture TWO different multi screen formations are available. Press the PBP button to change the screen formation as shown in the above picture.

2. To control the individual image in multi screen, use the Screen F1 key to select the desired display then control the desired function. Selected image will be highlighted.

<Screen 1selected> <Screen 2selected>

< Warning : Burn-In >

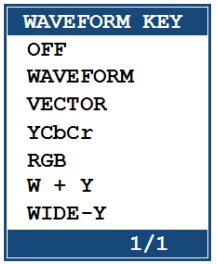
Similar to CRT or Plasma display, OLED is also a self-luminescence display and due to the characteristics of the materials used for this technology, Burn-In, Image Sticking or regional brightness reduction may occur when displaying a static image, markers, characters, overlay graphics or masked images for specific screen ratio over a certain period of time. To prevent burn-in, it is highly recommended to turn off the power of the monitor when it is not used. And displaying markers, characters, overlay graphics, static images or masked screen for more than 10 minutes are not recommended. Please turn off these functions whenever possible.

[5] FUNCTION KEY SET

- **Used to make a quick setting of the Function Key.**
  - LEM-250A has 4 functions keys(F1~F4).

1. Press the function button on the front of the monitor for more than 2 seconds and activate the OSD menu as follows.

2. Move to a desired function with the[UP/DOWN] button and press the [ENTER] button to select.

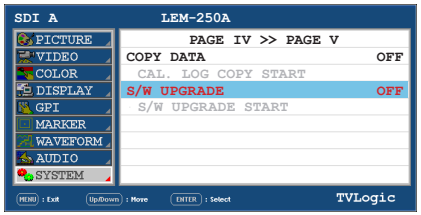


6. Other Functions

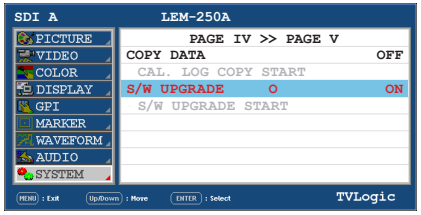
[6] Firmware Upgrade

- **The USB portable storage device (Thumb drive) is needed for Firmware Upgrade.**
- **Select the PAGE III of [SYSTEM] menu to activate.**

1. Connect the USB to the USB Slot on the front of the monitor.
2. Set the [S/W UPGRADE] as [ON].



3. The [S/W UPGRADE START] activates when the USB connection is completed.



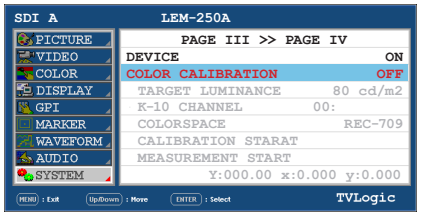
4. Select the [S/W UPGRADE START] to start the firmware update.

* While the Upgrade is conducting, the monitor screen turns off and the monitor stops functioning.
* When the Upgrade is completed, the monitor reboots.
* The Upgrade process takes about 20~30 minutes according to the Firmware type.

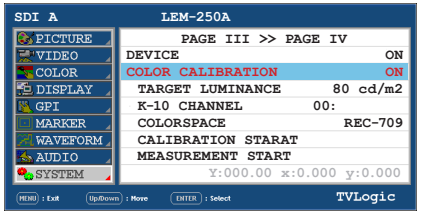
[7] COLOR CALIBRATION

- **The Probe(USB) is needed for Auto Color Calibration.**
- **Select the PAGE III of [SYSTEM] menu to activate.**

1. Connect the Color Probe to the USB Slot on the front of the monitor.
   A supported USB probe (K-10, i1Pro) is needed for Auto Color Calibration
2. Set the [DEVICE] as the Color Probe which will be connected.



3. Set the [Color Calibration] as [On].
4. Then the USB Color Probe is searched automatically.
5. The [Color Calibration] activates when the USB connection is completed.



6. Set the value of [TARGET LUMINANCE], [K-10 CHANNEL] and [COLORSPACE].
7. Select the [CALIBRATION START] to start the calibration.

* After the calibration starts, various patterns come on the screen and conduct the color calibration.
* The Color Calibration takes about 20~60 minutes.

7. DVI / HDMI Support Resolution

DVI ANALOG / DVI DIGITAL / HDMI SUPPORT RESOLUTION

- **DVI-ANALOG mode supports the following modes :**

Resolution	Frequency
640 X 480	60Hz, 75Hz
720 X 400	70Hz
800 X 600	60Hz, 72Hz, 75Hz
1024 X 768	60Hz, 70Hz, 75Hz
1366 X 768	60Hz / 75Hz
1280 X 1024	60Hz / 75Hz
1600 X 1200	60Hz
1920 X 1080	60Hz

- **DVI DIGITAL Graphic mode supports the following modes :**

Resolution	Frequency
640 X 480	60Hz, 75Hz
800 X 600	60Hz, 72Hz, 75Hz
1024 X 768	60Hz, 70Hz, 75Hz
1366 X 768	60Hz / 75Hz
1280 X 1024	60Hz / 75Hz
1600 X 1200	60Hz
1920 X 1080	60Hz
1920 X 1200	60Hz

- **DVI DIGITAL Video mode supports the following input signals :**

SMPTE-274M	1080i (60 / 59.94)
SMPTE-296M	720i (60 / 59.94)
SMPTE-125M	480i (59.94), 480p (59.94)

- **DVI DIGITAL mode is separated into Graphic mode and Video mode.**
- **In DVI ANALOG/DIGITAL mode, ZERO scan must be selected for normal function.**
- **If the input image is in non-wide mode, press ASPECT button to change to wide display.**

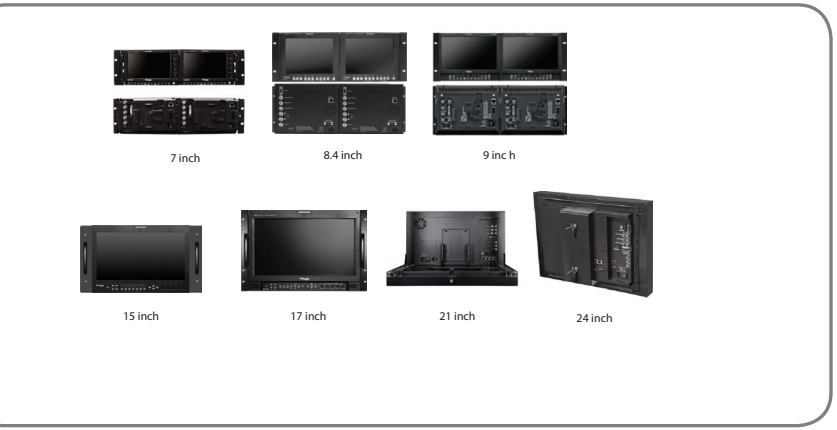
8. Product Specifications

OLED	Size	24.5"	
	Resolution	1920 X 1080	
	Pixel Pitch	0.283(H) X 0.283(W) mm	
	Color Depth	10-bit 1.07B color	
	Viewing Angle	R/L, U/D 178degrees	
	Luminance of white	150 cd/ m²	
	Contrast Ratio	5000 : 1	
	Display Area	543.4(H) X 305.6(V) mm	
Input Connector	1 X DVI-I	DVI IN	
	3 X BNC	Analog Input	
	2 X BNC	SDI A/B Channel Input	
	1 X HDMI	HDMI Input	
	1 X BNC	EXT SYNC INPUT	
Output	3 X BNC	Analog Output	
	2 X BNC	SDI A/B Channel (Active Through Out)	
	1 X BNC	EXT SYNC OUT(Active Through Out)	
Input Signal	Analog	Composite/ S-Video / Component Video / RGB	
	3G-SDI	2.970Gbps	
	HD-SDI	1.485Gbps	
	SD-SDI	270 Mbps	
	DVI	VESA/IBM Modes	
	HDMI	1080p (23.98/24/25/30/50/59.94/60)/1080i(50/59.94/60)/720p(50/60) 480i(60)/480p(60)/576i(50)/576p(50) 640x480/720x400/800x600/1024x768/1280x768/1280x1024/1366x768	
Analog Input Spec	Composite	1.0Vpp (with Sync)	
	S-Video	1.0Vpp (Y with Sync), 0.286Vpp(C)	
	Component	1.0Vpp (Y with Sync), 0.7Vpp (Pb,Pr)	
	RGB	1.0Vpp (Y with Sync), 0.7Vpp (Pb,Pr)	
SDI Input Signal Formats	SMPTE-425M-A/B	1080p(60/59.94/50/30/29.97/25/24/23.98/30sF/29.97sF/25sF/24sF/23.98sF), 1080i (60/59.94/50)	
	SMPTE-372M	Dual HD-SDI YPbPr (4:2:2)	1080p(50/59.94/60)
		Dual HD-SDI YCbCr RGB (4:2:2)	1080p(50/59.94/60)
			1080p/psf(30/29.97/25/24/24sF/23.98/23.98sF)
	SMPTE-274M	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	480i (59.94)	
	ITU-R BT.656	576i (50)	
	2K Format	2048 x 1080p (24/24sF/23.98/23.98sF)	
Audio In		Embedded Audio / Analog Stereo (Phone Jack)	
Audio Out		Internal Speaker (Stereo) / Analog Stereo (Phone Jack)	
Power		AC100~240V , DC 24V	
Power Consumption (Approx.)		83 Watts(AC/Typ.)	
Operating Temperature		0℃ to 40℃ (32°F to 104°F)	
Storage Temperature		-20℃ to 60℃ (-4°F to 140°F)	
Main Body Dimensions (mm/inch)		578 X 392X 98.6 (22.76X15.43X3.88)	
Main Body Dimensions with stand (mm/inch)		609.6 X 419.8 X 150 (24 X 16.53 X 5.91)	
Box Dimensions (mm/inch)		700 X 540 X 285 (27.56 X 21.26 X 11.22)	
Weight		6.4Kg / 14.08 lbs	
Basic Accessories		AC Power Cord, DC Power Adapter, Stand	
Optional Accessories		Acrylic Filter, Carrying Case, Rack Mountable Kit, V-mount, Gold mount	

* The specification above may be changed without notice.

9. Optional Accessories

RACK MOUNT ANY DISPLAY UP TO 24"



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