



# Multi Format LCD Monitor

Operation Manual\_v1.0

LVM-171S



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## 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 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.

# 1. Caution

- **Always use set voltage.**
- **AC 100 ~ 240V (50~60Hz)**
- **DC 12V**
- All operating instructions must be read and understood before the product is operated.
- These safety and operating instructions must be kept in a 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 the 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 repair 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 occur, unplug the power cord from the AC outlet, and request a qualified service person to perform repairs.
  - a. When the power cord or plug is damaged.
  - b. When 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.
- The power cord plug shall be connected to a MAINS socket outlet with a protective earthing connection.
- Unplug the power cord from the AC outlet when happening any problem in the product.

# 1. Caution

- When mounting the product be sure to install the product according to the method recommended by the manufacturer.
- Unplug the power cord from the AC 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.
- The LCD 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 LCD panel breaks.
- Keep the product away from heat sources such as radiators, heaters, stoves and other heat generating products (including amplifiers).

## WARNING



<Main Switch>

- ⏻ means Power on when pressing
- ⏻ means Power off when pressing



<Beside critical components in circuit diagram>

To identify any terminal which is intended for connection to an external conductor for protection against electric shock in case of a fault, or the terminal of a protective earth (ground) electrode.



<Near the main terminal block>

This mark indicates the possibility of injury or damage to property.

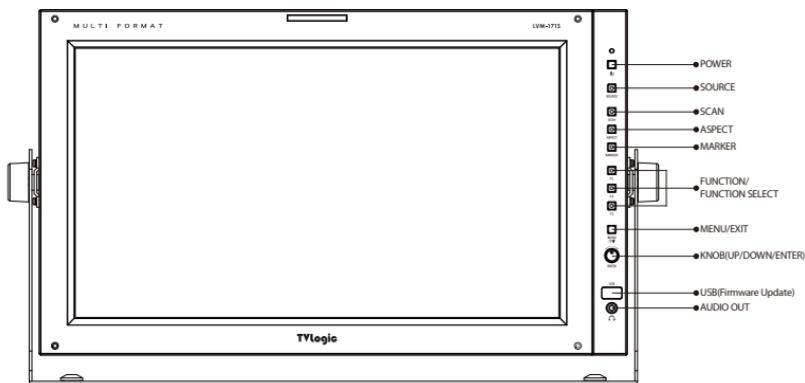
## 2. Main Features

### LVM-171S contains the following features:

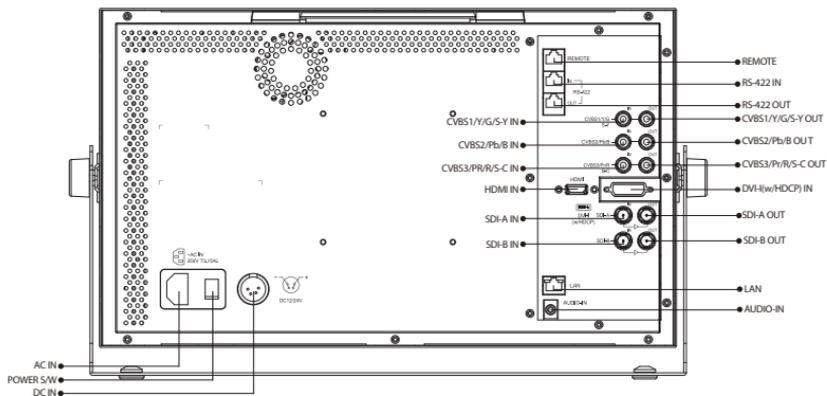
- **Compatible with various SDI(SD/HD/3G) signal formats**
  - This product is compatible with various SDI signals - 480i,576i,720p,1035i,1080i,1080p,1080psf
- **HDMI(w/HDCP) and DVI-D(Digital) Digital Signal Support**
  - This product is compatible with various HD MI(HDCP 1.4) signals of HDCP 1.4a Std. and DVI input signals.
- **Compatible with varied Analog Signals (Composite and DVI-A(Analog))**
  - This product is compatible with various Analog signals –Composite, DVI Analog(VGA)
- **All-in-one type system**
  - Slim and all-in-one type monitor as it requires no additional accessories, for optimized space utilization.
- **Waveform / Vector Scope / Audio Level Meter Function**
  - Waveform & Vector Scope Support
  - Embedded Audio Level Meter Support
- **Audio in & out**
  - Internal Speaker (Embedded audio & External Audio In)
  - Stereo Audio Out & External Audio In through phone Jack.
- **Knob Control**
  - Easy to adjust user configuration using the control knob on the front of the monitor.
- **BLUE ONLY / MONO / Focus Assist/ H/V Delay Function**
- **Range Error/Luma(Y') Zone Check(Color/ Zebra Type) Function**
- **Internal Pattern Generator (0~100% Gray/ ColorBar+Plug)**
- **3G support**
  - Supports 3G A/B formats.
- **Various Markers& Safety Areas**
  - Center Marker, Safety Area Marker, Marker Mat, Marker Size, Fit Marker, Thickness Adjustment Functions
- **External control function**
  - This product can be controlled by using parallel switch, RS-422 and Network simply with cable connection without additional peripheral equipment attached to the unit.
- **RS422/UMD Protocol Support**
  - This product supports protocols provided by TVLogic or a TSL protocol.
- **Power**
  - Basically, this product is powered by normal AC source and can be powered by DC 12V as well
- **Additional Features**
  - Loop Through (SDI/Analog), VESA Mount, OSD user interface, Rack-Mountable design
  - 1400:1 Contrast, 450cd/m<sup>2</sup> Brightness (16:9 Wide Viewing Angle Screen)

# 3. Controls & Functions

## LVM-171S : FRONT



## LVM-171S : REAR



## 3. Controls & Functions

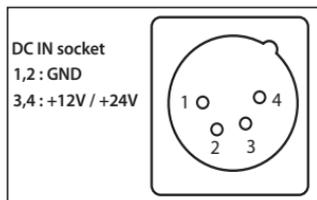
### FRONT

- **[FRONT TALLY]**
    - Tally lamp that can be toggled in green or red using the REMOTE(RJ-45) port or TVLogic's management program(Observer).
  - **[POWER]**
    - Used to turn the power on and off.
  - **[SOURCE]**
    - Used to select the desired input source or used to select the PBP Mode. Use the Knob to select and active the input mode or PBP mode.
- 
- **[F1]~[F3]**
    - This Functions button is used to activate The feature selected in [F1]~[F3] Button.
  - **[MENU/EXIT]**
    - Used to activate the OSD menu.
    - When the OSD menu is activated, press this button to exit from the menu.
  - **[UP/DOWN/ENTER] (Knob)**
    - Used to move within the menu when OSD menu is activated and is also used to decrease or increase the value of the selected feature.
    - Press the Knob to select the main menu and sub menus.
  - **[USB] (USB-A)**
    - This terminal is used to upgrade the firmware or color calibration made by TVLogic.
  - **[AUDIO OUT] (Phone jack)**
    - Selects the Left/Right Audio disembedded signal output or HDMI input signal or external stereo signal is output through the internal speaker or the phone jack.
- **[SCAN]**
    - Used to change the scan mode.
  - **[ASPECT]**
    - Used to change the various display ratio between 4:3 and 16:9.
  - **[MARKER]**
    - 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.

# 3. Controls & Functions

## REAR

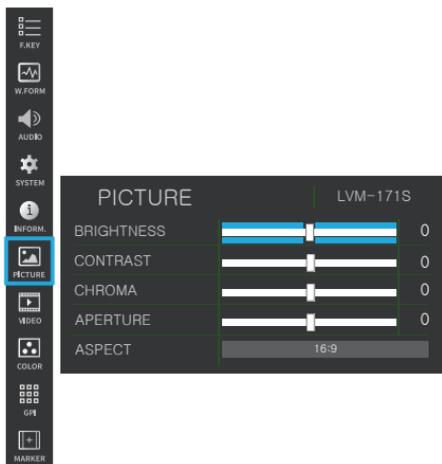
- **[REMOTE] (RJ-45)**
  - Provides connection to control equipment(parallel switch) for external monitor control.
  - Features of each pin can be changed.
- **[RS422 IN & OUT] (RJ-45)**
  - Used to control the monitor with protocol provided by TVLogic or to support TSL protocol.
- **[CVBS1~3/YPbPr/S-Y B S-C IN & OUT] (BNC)**
  - Signal Input and Output terminal for Analog signals.
  - Video input connection method.
- **[HDMI IN] (HDMI-A)**
  - Signal input terminal for HDMI signal.
- **[DVI IN] (DVI-I)**
  - Signal input terminal for DVI DIGITAL or DVI ANALOG signal.
- **[SDI-A/B IN & OUT] (BNC)**
  - Signal input terminal for SD/HD/3G-SDI
  - The SDI-B OUT terminal supports only the Direct Loop Through method in which the input signal input to the SDI-B IN terminal is output as is.
  - The SDI-A OUT terminal supports two output modes: Direct Loop Through, which outputs the input signal as it is input to the SDI-A IN port, and output mode, which includes a Camera LUT with a fixed resolution of 1920x1080 @ 60Hz.
- **[LAN] (RJ-45)**
  - Provides connection to control equipment for external monitor control.
- **[AUDIO IN] (Phone jack)**
  - Audio input terminal for External Audio signal.
- **[AC IN]**
  - 100 ~ 240V AC 50/60Hz
- **[POWER S/W]**
  - Power On/Off Switch
- **[DC IN]**
  - 12V DC



## 4. Menu Tree & Adjustment

### [1] Menu Construction

- This Picture is the menu structure for LVM-171S.



### [2] Menu Control

- You can control various functions using the MENU and the Knob buttons on the front left of the monitor.

### [3] Menu Control Sequence

- Menu control sequence follows the order below :
  1. Press the MENU button to activate the OSD menu.
  2. Move to a desired menu by rotating the Knob.
  3. Press the Knob to select a menu and move to a sub-menu by rotating the Knob.
  4. Press the Knob to select the desired sub menu. (The selected sub-menu will be highlighted.)
  5. Press the Knob or MENU button to save the new value after adjusting the value by rotating the Knob.
  6. Press the MENU button to return to the previous menu and if there is no previous menu, the OSD menu will be removed from the screen.

## 4. Menu Tree & Adjustment

### [4] MENU TREE

PICTURE	BRIGHTNESS
	CONTRAST
	CHROMA
	APERTURE
	ASPECT
VIDEO	3G FORMAT
	VIDEO RANGE SELECT
COLOR	COLOR Temp.
	GAIN RED
	GAIN GREEN
	GAIN BLUE
	BIAS RED
	BIAS GREEN
	BIAS BLUE
	COLOP COPY
	COLOR SPACE
	GAMMA
	BACK LIGHT

GPI	GPI PIN 1~GPI PIN 8
	GROUP ID
	MONITOR ID
	DHCP
	ID ADDRESS
	SUBNET MASK
	PORT NO.
	SETTING APPLY
MARKER	MARKER
	CENTER MARKER
	SAFETY AREA
	FIT MARKER
	MARKER MAT
	MARKER COLOR
	MARKER THICKNESS
	USER MARKER H1
	USER MARKER H2
	USER MARKER V1
USER MARKER V2	

# 4. Menu Tree & Adjustment

## [4] MENU TREE

Function Key	KEY LED
	KEY MAPPING F1~F5
	KEY LOCK
WAVEFORM	WAVEFORM DISPLAY
	WAVEFORM INTENSITY
	WAVEFORM TRANS
	WAVEFORM COLOR
	LINE WAVEFORM
	SELECT LINE POSITION
	LUMA(Y') ZONE CHECK
	LUMA(Y') ZONE ADJUST
	FOCUS ASSIST
	FOCUS ASSIST COLOR
	FOCUS ASSIST LEVEL
	Y MAX
	Y MIN

AUDIO	LEVEL METER SELECT
	LEVEL METER DISPLAY
	LEVEL METER REFERENCE
	LEVEL METER DECAY TIME
	LEVEL METER SIZE
	LEVEL METER POSITION
	VOLUME
	EM. AUDIO LEFT
	EM. AUDIO RIGHT
	SYSTEM
LOCK NUMBER	
LOCK ENABLE	
OSD DISPLAY	
OSD POSITION	
INTERNAL PATTERN	
SET DEFAULT	
SIGNAL LOCK	
BATTERY CHECK	
S/W UPGRADE	
FAN CONTROL	
TEMPERATURE	
OPERATING TIME	

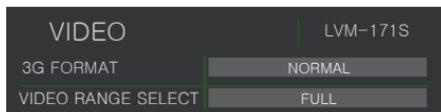
# 5. Menu Operations

## [1] PICTURE



- **BRIGHT**
  - Used to set the brightness level from -100 to 100.
  - Brightness can be adjusted by using the control knob on the front of the monitor.
- **CONTRAST**
  - Used to set the contrast level from -100 to 100.
  - Contrast can be adjusted by using the control knob on the front of the monitor.
- **CHROMA**
  - Used to set the saturation level from -50 to 50.
  - Chroma can be adjusted by using the control knob on the front of the monitor.
- **APERTURE**
  - Used to set the picture sharpness level from 0 to 25.
  - Aperture can be adjusted by using the control knob on the front of the monitor.
- **ASPECT**
  - Used to change the various display ratio between 4:3 and 16:9.

## [2] VIDEO



- **3G FORMAT**
  - Used to select input format of SDI 3G A/B support. (NORMAL MODE(AUTO - A 422 10BIT\_YCbCr 50/60P), A 444 10/12BIT\_YCbCr, A 444 10/12BIT\_RGB, A 422 12BIT\_YCbCr, B 444 10/12BIT\_YCbCr, B 444 10/12BIT\_RGB, B 422 12BIT\_YCbCr, B 422 10BIT\_YCbCr 50/60P).
  - Automatically detects when Payload signal appears in NORMAL MODE.
- **VIDEO RANGE SELECT**
  - Used to set the VIDEO RANGE of input signal. (FULL/NARROW)

# 5. Menu Operations

## [3] COLOR



### ● COLOR SPACE

- Used to select the color output format.
- Available values are REC-709(sRGB), LUT SMPTE-C, LUT EBU, LUT D-CINEMA and NATIVE COLOR.

### ● GAMMA

- Used to change the Gamma Curve between [2.2] and [2.4].

### ● BACK LIGHT

- Displays the current value of backlight. Available values are from 0 to 100.
- When activating the Set Default, the values initialize to factory setting.

### ● COLOR Temp.

- Used to control the Color Temperature and allow instant access to preset color temperature settings.
- Available values are 6500K\_60P, 6500K\_50P and User 1/2/3.
- In User 1/2/3 modes, user can define custom RGB Gain, Bias(=Offset) and Color Copy values.

### ● GAIN RED / GREEN / BLUE

- Used to set Red/Green/Blue Gain(or Picture, Contrast) level from -256 to 255.
- Only available in User 1/2/3 modes.

### ● BIAS RED / GREEN / BLUE

- Used to set Red/Green/Blue Bias(or Offset, mainly affects on Black level) level from -100 to 100.
- Only available in User 1/2/3 modes.

### ● COLOR COPY

- Used to copy the R/G/B Gain value of pre-stored color temperature settings.
- In User mode, find and select the color temperature to be used with the Knob and press the Knob button to copy and apply the Gain value to GAIN RED, GAIN GREEN, GAIN BLUE.
- Only available in User 1/2/3 modes.

# 5. Menu Operations

## [4] GPI

GPI		LVM-171S
PIN 1	<input type="text" value="NONE"/>	
PIN 2	<input type="text" value="SDI CHANNEL"/>	
PIN 3	<input type="text" value="HDMI CHANNEL"/>	
PIN 4	<input type="text" value="UNDER SCAN"/>	
PIN 5	<input type="text" value="ASPECT"/>	
PIN 6	<input type="text" value="H/V DELAY"/>	
PIN 7	<input type="text" value="BLUE ONLY"/>	
PIN 8	<input type="text" value="MONO"/>	
GROUP ID	<input type="text" value="0"/>	0
MONITOR ID	<input type="text" value="0"/>	0
DHCP	<input type="text" value="ON"/>	
IP ADDRESS	<input type="text" value="192.168.1.100"/>	
SUBNET MASK	<input type="text" value="255.255.255.0"/>	
GATEWAY	<input type="text" value="192.168.1.1"/>	
PORT NO.	<input type="text" value="10262"/>	10262
SETTING APPLY	<input type="text" value="ON"/>	

### ● GPI PIN 1 ~ PIN 8

- This item activate/ deactivate the REMOTE function.
- The user may connect an 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 : Digital CHANNEL
  - PIN 3 : SDI\_A CHANNEL
  - PIN 4 : SDI\_B CHANNEL
  - PIN 5 : TALLY R
  - PIN 6: TALLY G
- PIN 7 is POWER ON/OFF use only and PIN 8 is GND.
- The selectable values are as shown on the left :

Menu Classification	Settable Values
PIN 1~6	NONE, ANALOG CHANNEL, HDMI CHANNEL, SDI-A/B CHANNEL TALLY RED, TALLY GREEN, BLUE ONLY, ASPECT, H/V DELAY, 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 88%, SAFETY AREA 90%, SAFETY AREA 93%, SAFETY AREA 100%, DYNAMIC-UMD, Focus Assist, CC608(ANC), CC608(L21), CC708
PIN 7	POWER ON/OFF CONTROL
PIN 8	GND

# 5. Menu Operations

## [4] GPI

GPI		LVM-171S
PIN 1	<input type="text" value="NONE"/>	
PIN 2	<input type="text" value="SDI CHANNEL"/>	
PIN 3	<input type="text" value="HDMI CHANNEL"/>	
PIN 4	<input type="text" value="UNDER SCAN"/>	
PIN 5	<input type="text" value="ASPECT"/>	
PIN 6	<input type="text" value="H/V DELAY"/>	
PIN 7	<input type="text" value="BLUE ONLY"/>	
PIN 8	<input type="text" value="MONO"/>	
GROUP ID	<input type="text" value="0"/>	0
MONITOR ID	<input type="text" value="0"/>	0
DHCP	<input type="text" value="ON"/>	
IP ADDRESS	<input type="text" value="192.168.1.100"/>	
SUBNET MASK	<input type="text" value="255.255.255.0"/>	
GATEWAY	<input type="text" value="192.168.1.1"/>	
PORT NO.	<input type="text" value="10262"/>	10262
SETTING APPLY	<input type="text" value="ON"/>	

### ● GROUP ID

- Used to group the monitors to control the monitors by group when the monitors are controlled by using RS-422/485 communication or Network.

### ● MONITOR ID

- Used to set the ID of each monitor for the TVLogic control protocol or DYNAMIC UMD using RS-422/485 communication or Network.

- Available values are between 0,2,4 ~ 98.

- Right screen in PBP mode is automatically set to +1 of the monitor ID.

### ● DHCP

- Used to set DHCP.

### ● IP ADDRESS / SUBNET MASK / GATEWAY

- Used to set the Network address.

### ● PORT NO

- Used to set the port number. The default value is 10262.

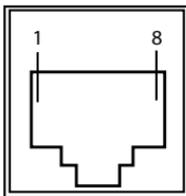
### ● SETTING APPLY

- Used to apply the settings.

### ● The pin positions are as follows :

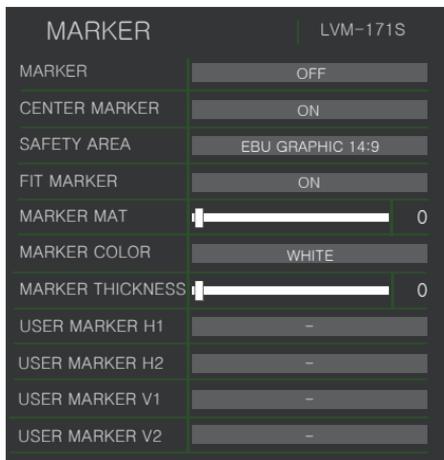
#### REMOTE (RJ-45)

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



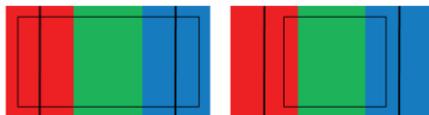
# 5. Menu Operations

## [5] MARKER



### ● FIT MARKER

- Used to activate or inactivate the Fit Marker function.
- When the Marker type is selected in the Marker menu, a border line of the Safety Area will be displayed inside the Marker. Images below show the difference between Fit Marker ON and OFF.



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

### ● MARKER MAT

- Used to set the darkness level outside of the MARKER area from OFF(transparent) to 7(Black).
- The bigger the value, the darker the color.

### ● MARKER COLOR

- Used to set the color of the MARKER lines.
- Available colors are white, gray, black, red, green and blue.

### ● THICKNESS

- Used to set the thickness of the MARKER lines.
- Thickness level is from 1 to 7 by the pixel unit.

### ● USER MARKER H1 / USER MARKER H2

- Used to set the position of the first horizontal marker line.
- Displayed when MARKER menu is set to USER.

### ● USER MARKER V1 / USER MARKER V2

- Used to set the position of the first vertical marker line.
- Displayed when MARKER menu is set to USER.

### ● MARKER

- Used to select the marker type when the MARKER is displayed on the screen.
- Available marker types are OFF, 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 and USER.
- MARKER may only be activated by pressing the MARKER button on the front of the monitor.

### ● CENTER MARKER

- Displays 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 and availability of the Safety Area.
- Available sizes are 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 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.

# 5. Menu Operations

## [6] FUNCTION KEY

Function Key		LVM-171S
KEY LED	<input type="checkbox"/>	ON
F1 KEY MAPPING	<input type="checkbox"/>	UD MODE(SDI-4CH)
F2 KEY MAPPING	<input type="checkbox"/>	UNDER SCAN
F3 KEY MAPPING	<input type="checkbox"/>	ASPECT
F4 KEY MAPPING	<input type="checkbox"/>	MARKER
F5 KEY MAPPING	<input type="checkbox"/>	BLUE ONLY
KEY LOCK	<input type="checkbox"/>	ON

### ● KEY LED

- Used to control the Key Lamp on the front of the monitor.

### ● F1 / F2 / F3 KEY MAPPING

- User can select the function for the F1 / F2 / 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 and BLUE ONLY.

### ● KEY LOCK

- This item locks all buttons except Power, Source and Menu buttons.

## [7] WAVEFORM & FOCUS

Waveform & Focus		LVM-171S
WAVE FORM DISPLAY	<input type="checkbox"/>	OFF
WAVE FORM INTENSITY	<input type="range"/>	0
WAVE FORM TRANS.	<input type="checkbox"/>	BLEND
WAVE FORM COLOR	<input type="checkbox"/>	WHITE
LINE WAVE FORM	<input type="checkbox"/>	ON
SELECT LINE POSITION	<input type="range"/>	0
LUMA(Y') ZONE CHECK	<input type="checkbox"/>	OFF
LUMA(Y') ZONE ADJUST	<input type="range"/>	0
FOCUS ASSIST	<input type="checkbox"/>	OFF
FOCUS ASSIST COLOR	<input type="checkbox"/>	WHITE
FOCUS ASSIST LEVEL	<input type="range"/>	0
RANGE ERROR	<input type="checkbox"/>	ON
Y MAX	<input type="range"/>	1
Y MIN	<input type="range"/>	1

### ● WAVE FORM DISPLAY

- This function sets the Waveform. Available options are different according to the Input signal.

- YCbCr: Off / Waveform / Vector Scope / Waveform Wide / Waveform YCbCr / Wave\_Vector / Vector\_YCbCr / Full Waveform(Y) / Full Vector Scope.

### ● WAVE FORM INTENSITY

- Controls the brightness of the Waveform/ Vector display.

- Available values are between 1 ~ 63. The higher the number the brighter the waveform will be.

### ● WAVE FORM TRANS

- Controls the transparency level of the Waveform/Vector.

- Available values are OPAQUE and TRANS.

• If the main OSD overlaps with the Waveform/Vector when the option is set to OPAQUE, it will automatically display it as transparent and change back to opaque when the main OSD disappears.

# 5. Menu Operations

## [7] WAVEFORM & FOCUS



### ● WAVE FORM COLOR

- This item selects the color of Waveform.
- Available options are Green and White.

### ● LINE WAVE FORM

- This item is utilized to display the entire data or one line data on the Waveform/Vector.

### ● SELECT LINE POSITION

- Used to select specific Vertical Line for Waveform/Vectorscope.
- It is available when LI LINE WAVEFORM is activated.
- To activate this feature, press the [W-FORM/ VECTOR] Button, then use the Knob to select a desired vertical line.
- Control range varies according to the resolution of the input SDI signal.

- PAL : Min. 1, Max. 625
- NTSC : Min. 1, Max. 525
- 720p : Min. 1, Max. 750
- 1080i : Min. 1, Max. 1125
- 1080p : Min. 1, Max. 1125

### ● LUMA(Y') ZONE CHECK

- Displays the Luma(Y') level of the input image in colors.
- Can select between [Color Pattern] or [Zebra Pattern].
- Each pixel's Y' analyzed and changed to a certain color or zebra pattern according to the Index on the right side of the screen.
- When a pixel's Y' level is under 0%(16), the color / diagonal line will be colored Green.
- When the pixel's Y' level is over 100%(235), the color / diagonal line will be colored Red.
- When the Y' level of a pixel is between 0~100%, the pixel is displayed with Gray, except for selected Luma Zone.
- In the [Color Pattern] mode, a 5% zone of the selected Y' level will be colored Pink(5%) and  $\pm 10\%$  will be colored Yellow(-10% from Pink) and Cyan(+10% from Pink).
- In the [Zebra Pattern] mode,  $\pm 5\%$  of the selected Y' Level will be displayed with diagonal lines.

### ● LUMA(Y') ZONE ADJUST

- Used to set the Y' level to be colored Yellow, Pink and Cyan in [Color Pattern] mode, or to set Y' level zone to be displayed with diagonal lines in [Zebra Pattern] mode simply by scrolling with the Knob.
- Available values are 0 ~ 100%.

### ● FOCUS ASSIST

- Focus Assist helps the shooters to easily find out the exact area in the picture that is in focus, simply by adding colors on the boundaries of the subject in the picture.
- Activates in the order of [Mono On] – [Color On] – [Off].
- (Mono) On : The boundary of the area with good focus is colored with the designated color, while the rest of the areas(pixels) receive only Y'(Luma) signals and become black & white image.
- (Color) On : Only the boundary of the area with good focus is displayed with the designated color.

# 5. Menu Operations

## [7] WAVEFORM & FOCUS



### ● FOCUS ASSIST COLOR

- Used to select a color for Focus Assist among red, green and blue.
- This feature is available only when the Focus Assist mode is activated.

### ● 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.

### ● RANGE ERROR

- Used to set whether or not to activate Y MAX, Y MIN, C MAX, C MIN, Y PICTURE BLINK and C PICTURE BLINK functions.
- The values of Y MAX, Y MIN, C MAX, C MIN are indicated in WAVEFORM/VECTOR.
- 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 shall blink.

### ● Y MAX

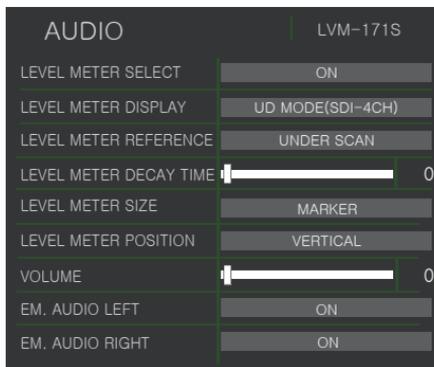
- Used to set the maximum luma(Y') level from 0 to 255.
- Pixels with values exceeding the max Y' level will blink in the screen, and display in red on the Waveform.

### ● Y MIN

- Used to set the minimum luma(Y') level from 0 to 255.
- Pixels with values exceeding the min Y' level will blink in the screen, and display in red on the Waveform.

# 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.
- When the Main Menu window activates, the level meter displays semi-transparent even if the [LEVEL METER SIZE] menu is set to opaque. It returns to normal when the Main Menu window is deactivated.

### ● LEVEL METER DISPLAY

- Used to set the display method for audio level meter.
- Available modes are Group and Pair.
- \* When the input signal is HDMI, the mode is fixed to Pair.

### ● LEVEL METER REFERENCE

- Used to set Audio Level Meter 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 from 0 to 100. 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 modes are as below.
- HORIZONTAL-TOP : Displays each 8 channel audio level meter horizontally on the top left and right.
- VERTICAL-MIDDLE : Displays each 8 channel audio level meter horizontally on the center left and right.
- VERTICAL-BOTTOM : Displays each 8 channel audio level meter horizontally on the bottom left and right.

### ● VOLUME

- Used to control the output volume of the internal speakers or [AUDIO OUT] on the back of the monitor.
- Control range is from 0 to 30

### ● AUDIO LEFT

- Used to set embedded audio channel for left audio out of internal speaker or [AUDIO OUT] terminal on the back of the monitor.
- Available values are between CH1 and CH16.
- In HDMI mode, audio channel is fixed to CH1.

### ● AUDIO RIGHT

- Used to set embedded audio channel for right audio out of internal speaker or [AUDIO OUT] terminal on the back of the monitor.
- Available values are between CH1 and CH16.
- In HDMI mode, audio channel is fixed to CH2.

# 5. Menu Operations

## [9] SYSTEM

SYSTEM		LVM-171S
USER CONFIG SET	USER 1	
LOCK NUMBER	***	
LOCK ENABLE	ON	
OSD DISPLAY	CONTINUE	
OSD POSITION	CENTER	
INTERNAL PATTERN	<input type="text" value="0"/>	0
SET DEFAULT	-	
BATTERY CHECK	-	
S/W UPGRADE	-	
FAN CONTROL	-	
TEMPERATURE	45	
OPERATING TIME	100 H	

### ● SET DEFAULT

- Used to initialize OSD values to factory default.
- Initializes the values to 0 of BRIGHT, CONTRAST, CHROMA, PHASE and APERTURE of the monitor.

### ● SW UPGRADE

- Used to upgrade the firmware using the USB(Thumb drive).

### ● OSD DISPLAY

- Used to control the OSD display time.
- Available values are 3 SEC, 20 SEC and CONTINUE.

### ● INTERNAL PATTERN

- Generates White Pattern internally.
- Selectable range is from 0% to 100% with 5% increment.

## 6. Button Function

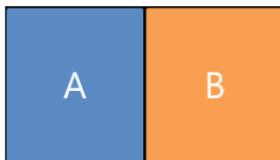
### [1] PBP(Picture-by-Picture) / PIP(Picture-in-Picture)

- **PBP(PIP) Mode Select**

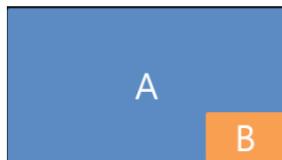
- Use the PBP button to change into PBP Screen. Available modes are as shown below.
- In order to avoid confusion of terms, the PIP mode on the screen is collectively referred to as PBP.



<PBP>



<1:1(FULL PICTURE)>



<PIP>

- **Screen Select**

- In PBP mode, use the [F1] button to select the desired display then control the desired function.
- Selected display will be highlighted.



<Screen-1 Selected>



<Screen-2 Selected>

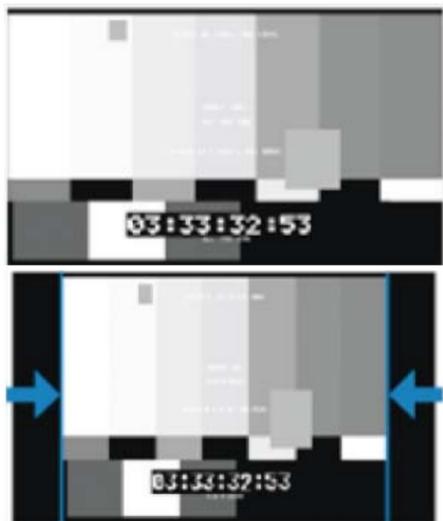
## 6. Button Function

### [2] USER Aspect

USER ASPECT  
WIDTH +1920  
HEIGHT +1080

- Used to adjust the Width /Height display ratio.

1. Press the [ASPECT] button on the front of the monitor to activate the [USER ASPECT] mode.
2. After the activation, press the Knob to begin controlling. Adjust the ratio using the Knob.



- Adjust the ratio using the Knob.
- Control range for width: 0~1920.
- Control range for height : 0~1080.
- The size-adjusted picture always stays in the center of the screen.
- The aspect ratio can be specified within the screen size supported by the monitor.
- The size can be adjustable with 2 increment and decrement.

# 6. Button Function

## [3] Waveform / Vectorscope

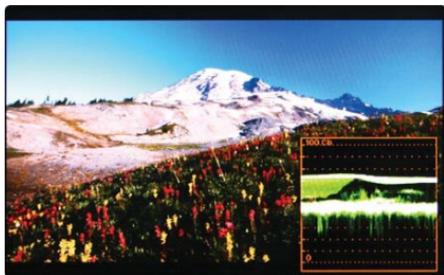
### ● Waveform Y

- Displays the Luma(Y') component of the input signal into waveform.



### ● Waveform Cb, Cr

- Displays the Cb, Cr components of the input signal into waveform



- The Waveform/ Vectorscope function can be used only when the input signal is YUV.

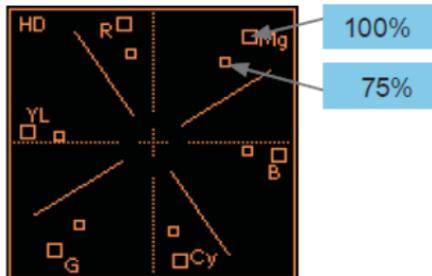
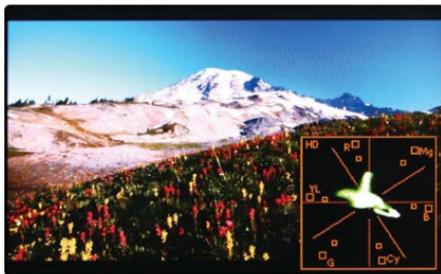
- In the case of RGB input, Waveform RGB is supported.

- Available modes in the YUV signal:

- Waveform
- Vector Scope
- Waveform Wide
- Waveform Y Cb Cr
- Waveform RGB
- Wave\_Vector
- Vector\_YCbCr
- Full Waveform(Y)
- Full Vector Scope

### ● Vector Scope

- Displays the color components 'B-Y' and 'R-Y' of the input signals onto the X-Y axis.
- Two different types of Vectorscopes are displayed according to SD or HD input signals.
- 100% and 75% scales are indicated on the Vectorscope.

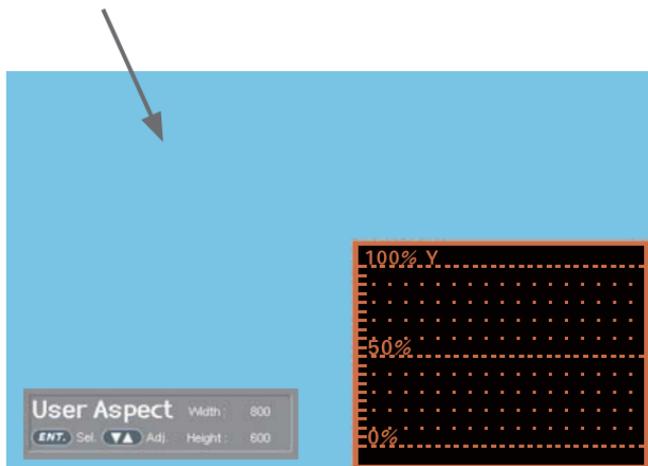


## 6. Button Function

### [4] Line Select (Waveform / Vector Scope)

- Used to select specific Vertical Line for Waveform / Vector.

- It is available when the Line Waveform is activated.
- To activate this feature, go to [Waveform]- [Waveform/Vector]-[Line Waveform]-[Select Line Position] and use the Knob to select a vertical line.
- Selected line is indicated in White on the screen.
- Control range varies according to the resolution of the input SDI signal.
  - PAL : 0~625
  - NTSC : 0~525
  - 720p : 0~750
  - 1080 i/p : 0~1125
- Control range for HDMI signal varies according to the output resolution of the signal.
- Selected line is indicated on the screen.



## 6. Button Function

### [5] Luma(Y') Zone Check

#### ● Color Pattern Type.

- Displays the Luma(Y') level of the input image in colors.
- $Y' \geq 100\%$  : Pixels with higher Y' level than 100 turn red.
- $Y' \leq 0\%$  : Pixels with lower Y' level than 0 turn green.
- Pixels with Y' levels designated by the user are displayed in following colors - yellow, pink, cyan.
- Factory Default Y' (Border line between pink and yellow) level is 70% and pink color is assigned to pixels with Y' level from 67.5% to 72.5%.
- Yellow color is assigned to pixels with Y' level from 72.5% to 82.5%, and Cyan from 62.5% to 72.5%.
- This function is designed for a better performance in setting the exposure of lighting when shooting with vDSLR cameras.

#### ● Zebra Pattern Type.

- Displays the pixels with designated Luma(Y') levels with zebra pattern.
- $Y' \geq 100\%$ : Pixels with Y' level over 100% turn into red diagonal stripes.
- $Y' \leq 0\%$  : Pixels with Y' level under 0% turn into green diagonal stripes.
- User defined Y' levels are displayed as black diagonal stripes.
- Factory Default Y' level is 70% and the pixels with Y' level from 65% to 75% is displayed with zebra pattern.
- Pixels with 10% of Y' level is displayed as black diagonal stripes.



<Luma Zone Check OFF>



<Luma Zone Check On\_Zebra Pattern Type>



<Luma Zone Check On\_Color Pattern Type>

## 6. Button Function

### [6] Focus Assist

- Focus Assist function assigns a color to the pixels on the boundaries of the image to inform the user to achieve the best focus.
  - With this function, user can easily differentiate the focused area from out-focused area especially when shooting with a shallow depth of field.
  - Available types are [Mono] and [Color] types.
    - [Mono] : Background image is mono type.
    - [Color] : Background image is original color type.



<Focus Assist Color On>



<Focus Assist Mono On>

### [7] Range Error

- Pixels with Y' or C' levels exceeding the designated levels of Y MAX, Y MIN, C MAX and C MIN shall blink.
  - Analyzes the input signal's Luma(Y') and chroma information(C') and if the input signal exceeds the designated minimum value and maximum value, the pixel shall blink. This function is to help the user to easily find out any unwanted levels of signals and for a better exposure setting.



<Range Error Off>



<Range Error ON>

# 7. Video Support Resolution

## [1] SDI Mode

Input Signal Interfaces	Signal Format (SD SDI)	
SD SDI single link	720x487 (59.94i) 720x576 (50i)	YCbCr 4:2:2 10bit

Input Signal Interfaces	Signal Format (3G SDI)	
3G-SDI (A/B) single link	1920x1080 (60p/59.94p/50p)	YCbCr 4:2:2 10bit
	1920x1080 (30/29.97/25/24/23.98/30sF/29.97sF/25sF/24sF/23.98sF)	RGB 4:4:4 10bit / 12bit YCbCr 4:4:4 10bit / 12bit

Input Signal Interfaces	Signal Format (HD SDI)	
HD SDI single link	1920x1080 (23.98/24/25/29.97/30p) (50/59.94/60i) (24/25/29.97/30psf) 1280x720 (50/59.94/60P)	YCbCr 4:2:2 10bit

## [2] SDI Mode

Input Signal Interfaces	Signal Format (HDMI)	
HDMI single link	1080p (60/59.94/50/30/29.97/25/24/23.98) 1080i (60/59.94/50) 720p (50/59.94/60p) 480i(60) / 576i(50) 480p(60) / 576p(50)	RGB 4:4:4 8bit / 10bit / 12bit YCbCr 4:4:4 8bit / 10bit / 12bit YCbCr 4:2:2 8bit / 10bit / 12bit

## 7. Video Support Resolution

### [3] DVI-ANALOG Mode

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

### [4] DVI-DGITAL GRAPHIC Mode

Resolution	Frequency
640 X 480	60Hz, 75Hz
800 X 600	60Hz, 72Hz, 75Hz
1024 X 768	60Hz, 70Hz, 75Hz
1366 X 768	60Hz / 75Hz

### [5] DVI-DGITAL VIDEO Mode

Resolution	Frequency
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 the ASPECT button to change to wide display

## 8. Product Specifications

		LVM-171S	
LCD	Size	16.5"	
	Resolution	1920 X 1080 (16:9)	
	Pixel Pitch	0.1905(H) X 0.1905(V) mm	
	Color	1.06B	
	Viewing Angle	H: 178 degrees / V: 178 degrees	
	Luminance of white	450 cd / m <sup>2</sup> (Center)	
	Contrast Ratio	1400 : 1	
Input Connector	Display Area	365.8(H) X 205.7(V) mm	
	1 X DVI-I	DVI-I(RGB) IN	
	3 X BNC	Analog Input	
	2 X BNC	SDI A/B Channel Input	
Output	1 X HDMI	HDMI Input	
	3 X BNC	Analog Output	
Input Signal	2 X BNC	SDI A/B Channel (Active Through Out)	
	Analog	Composite/ S-Video / Component / RGB	
	3G-SDI	2.970Gbps	
	HD-SDI	1.485Gbps	
	SD-SDI	270 Mbps	
	DVI	VESA/IBM Modes	
Analog Input Spec	HDMI	480i / 480p / 720p / 1080i & VESA / IBM Modes	
	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)	
SDI Input Signal Formats	RGB	1.0Vpp (Y with Sync), 0.7Vpp (Pb,Pr)	
	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 YPbPr RGB (4:4:4)	1080p(50/59.94/60)
		1080p/psf(30/29.97/25/24/23.98)	
	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 1080(23.98p/psf, 24p/psf)		
Audio In	Embedded Audio / Analog Stereo (Phone Jack)		
Audio Out	Analog Stereo (Phone Jack), Internal Speaker(Stereo)		
Power	AC100~240V(50~60Hz) / DC 12V		
Power Consumption (Approx.)	40Watts(Max.)		
Operating Temperature	0°C to 40°C (32°F to 104°F)		
Storage Temperature	-20°C to 60°C (-4°F to 140°F)		
Main Body Dimensions (mm/inch)	445x264.78.4mm(17.52x10.39x3.08)		
Main Body Dimensions with stand (mm/inch)	492.2x286x137.5mm(19.37x11.25x5.41)		
Weight	7Kg / 15.4 lbs		
Basic Accessories	AC Power Cord, Stand, USB Cover Manual		
Optional Accessories	Rack Mountable Kit, ND Filter, Sun Hood, Carrying Case, V-mount, G-mount		

\* The specification above may be changed without notice.

# 9. Optional Accessories



ND Glass Filter [17"](#) [24"](#)



Rack Mountable Kit [17"](#) [8.4"](#) [9"](#) [11.5"](#) [17"](#) [24"](#)



Gold-Mount [7"](#) [17"](#) [24"](#) [28"](#)



V-Mount [8.5"](#) [11"](#) [8.4"](#)



Hood [8.5"](#) [9"](#) [9.5"](#) [10.5"](#) [11"](#)



Carrying Case [8.5"](#) [9"](#) [10.4"](#) [10.5"](#) [11"](#) [11.4"](#) [12.4"](#) [12.5"](#) [13.5"](#) [14"](#) [15"](#)

## RACK MOUNT ANY DISPLAY UP TO 24"



7 inch



8.4 inch



9 inc h



15 inch



17 inch



21 inch



24 inch

# MEMO

A large, empty rectangular area with rounded corners, intended for writing a memo. The area is white and occupies most of the page below the header and above the footer.

# MEMO

A large, empty rectangular area with rounded corners, intended for writing a memo. The area is white and occupies most of the page below the header.



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