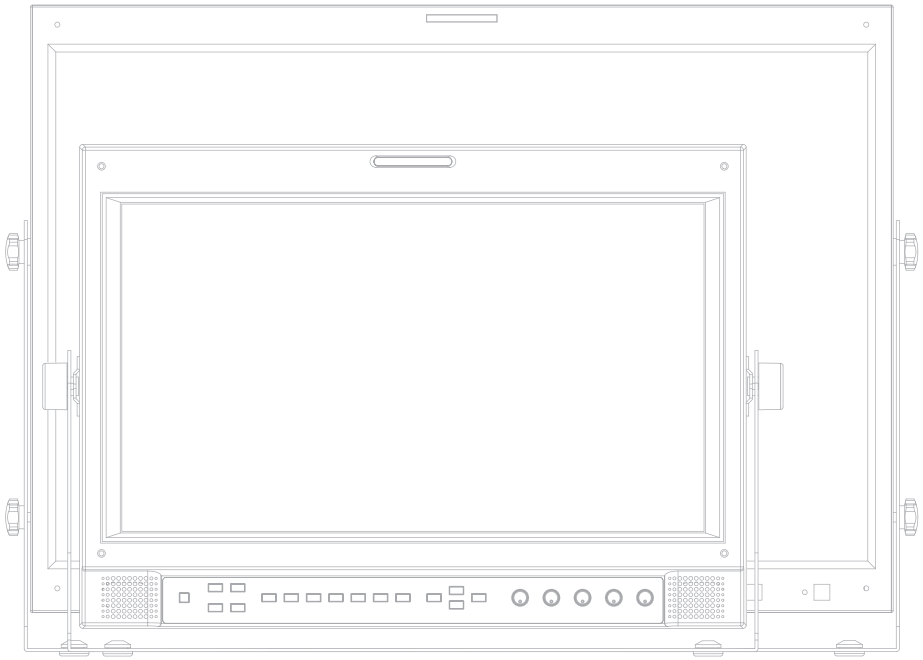


Multi Format LCD MONITOR

Operation Manual

LVM-172W
LVM-242W

multi

TVLogic

Contents

CAUTION 4

FEATURES 6

NAME & FUNCTION OF EACH PART 7

MENU ORGANIZATION & ADJUSTMENT 13

MENU CONTENTS 14

OTHER FUNCTIONS 28

DVI DIGITAL/ANALOG INPUT SIGNAL FORMAT 32

PRODUCT SPECIFICATION 35

PRODUCT LINEUP 36

OPTIONAL ACCESSORIES 38

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 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.

Caution

ALWAYS USE SET VOLTAGE. AC 100 ~ 240V (1.2A/50~60HZ), DC 12/24V (MAX 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 AC outlet, and request a qualified service person to perform repairs.

  a. When the power cord or plug in 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.

Caution

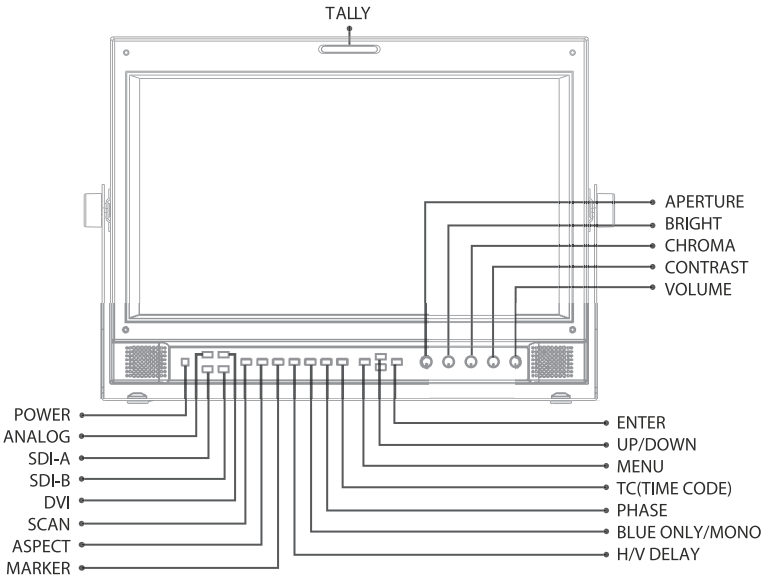
- In case the product needs replacement parts, make sure that the service person uses replacement parts specified by the manufacturer, or those with the same characteristics and performance as the original parts. Use of unauthorized parts can result in fire, electric shock and/or other danger.
- Upon completion of service or repair work, request the service technician to perform safety checks to ensure that the product is in proper operating condition.
- 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 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).

Features

MULTI-FORMAT LVM SERIES UNIT HAS THE FOLLOWING FEATURES:

- **Compatible with varied SDI signals**
  - The product is compatible with varied SDI signals (408i, 576i, 720p, 1035i, 1080i, 1080p and 1080psf)
- **Compatible with varied analog signals**
  - The product is compatible with varied analog signals (Composite, S-Video, Component, RGB, etc.)
- **DVI Digital(HDCP) / Analog input support**
  - DVI digital/analog(VGA) input is available without any other accessory.
- **All-in-one type system**
  - Slim and all-in-one type monitor that requires no other accessories and optimized for space utilization.
- **Waveform/Vector Scope/Audio Level Meter support**
  - Waveform & Vector Scope (SDI input)
  - Embedded Audio Level Meter
- **Audio in & out**
  - built-in internal speaker (Embedded audio & External audio in)
  - Stereo audio out using phone jack & external audio in
- **Knob Control (LVM-172W)**
  - Easy to adjust user configuration using the control knobs.
- **BLUE ONLY/MONO/Focus-Assist**
- **H/V delay**
- **Wide variety of Markers & Safety Areas**
  - Center Marker, Safety Area Marker, Aspect Marker, Display Size(Scan)
- **1:1 SCAN**
  - Provides both full screen and unscaled native image.
- **Wide screen compatible**
  - Wide screen for 16:9 aspect ratio monitoring (LVM-172W)
  - Wide screen for native 16:9 aspect ratio monitoring (LVM-242W)
- **AC/DC Compatible**
  - The product may be powered by normal AC source, but also capable with 12V/24V DC.
    * LVM-172W : AC, DC12V/24V
    * LVM-242W : AC, DC24V Only
- **Remote control function**
  - The product can be remotely controlled using external switch or RS-422 communication.
- **RS422/UMD feature support**
  - This product supports protocols provided by TVLogic or a TSL protocol.
- **Additional Features**
  - Wide Viewing Angle, Loop Through (SDI/Analog), VESA Mounting , 1000:1 Contrast ratio (LVM-242W), 900:1 Contrast ratio (LVM-172W), 350 cd/m2 brightness (LVM-172W), 400 cd/m2 brightness (LVM-242W), Easy to operate OSD user interface, Rack Mountable design.

LVM-172W FRONT



- **[ANALOG] Button/Lamp**
  - Used to select desired Analog input. (CVB1/2/3, S-Video, Component, RGB)
  - Press the button to activate the analog input menu-selection, then use UP and DOWN button to select desired input.
  * See section "Other Functions [1]ANALOG Button" for more information.

- **[DVI] Button/Lamp**
  - Used to select desired DVI input.
  - Press the button to activate the DVI input menu selection, then use UP and DOWN button to select desired input.
  * See section "Other Functions [2]DVI Button" for more information.

- **[SDI-A]/[SDI-B] Button/Lamp**
  - Used to select SDI-A/SDI-B input.

- **[SCAN] button/lamp**
  - Used to change the scan mode. Press the button to activate through the scan modes: OVER SCAN -> USER ASPECT -> ZERO SCAN -> UNDER SCAN -> 1:1 SCAN -> FIT WIDTH
  * See section "Other Functions [3]SCAN Button" for more information.
  #[USER ASPECT] : User can adjust width and height of the display.
  * See section "Other Functions [4] Pixel to Pixel and [5] User Aspect" for more information.

- **[ASPECT] Button/Lamp**
  - Used to change the display ratio between 4:3 and 16:9.
  * Display ratio locks to 16:9 if the display ratio of input signal is 16:9.

Name & Function of Each Part

- **[MARKER] Button/Lamp**
  - Used to activate/deactivate the Marker. The type of marker at work may be selected on the main menu.

- **[H/V DELAY] button/lamp**
  - Used to check horizontal sync and vertical sync simultaneously.

- **[BLUE ONLY]/[MONO] Button/Lamp**
  - Activates in the order of [Off]-[Blue Only]-[Mono]-[Focus Assist]-[Off]
  - Press the button to remove red and green from the input signal and display the screen only under a blue signal.
    Press the button again to activate mono mode. They are not available in RGB, DVI ANALOG, DVI DIGITAL and HDMI modes.
    # [Focus Assist] : Focus assist support feature.
    Use [Chroma] knob to control the sensitivity level(0~80) of Focus Assist. Maximum value is 80.

- **[PHASE] Button**
  - Used to activate PHASE and Closed Caption feature and use UP/DOWN buttons to toggle through the values.
  - Feature activates differently in different input mode:
  - SDI-A/B input : Closed Caption.
  - Composite/S-Video input : PHASE

- **[T.C] Button/Lamp**
  - Used to activate Timecode (VITC,LTC) display feature.
  - Press the button once to activates VITC and press again to activate LTC.

- **[MENU] Button**
  - Used to activate the main OSD Menu.

- **[UP] Button**
  - Used to move within the menus during OSD menu activation and is also used to increase the value of selected feature.
  - In Pixel to Pixel mode, press the button to rotate the display clockwise. (LVM-172W)

- **[DOWN] Button**
  - Used to move within the menus during OSD menu activation and is also used to decrease the value of the selected feature.
  - in Pixel to Pixel mode, press the button to rotate the displays counterclockwise. (LVM-172W)

- **[ENTER] Button**
  - Used to confirm a chosen value.

- **[POWER] Button**
  - Power On/Off button. LED lights in Red when the power is Off and lights in Green if the signal is normal. If the signal is unsupported or disconnected, LED flashes in yellow.

- **[TALLY]**
  - Tally lamp that can be toggled in green or red using the REMOTE(RJ-45) port or RS-422 serial communication.

- **[APERTURE] Knob**
  - Used to adjust the picture sharpness. The value is selectable between -12 ~ 12.
    #Aperture is not available in DVI Analog or Graphic mode.

Name & Function of Each Part

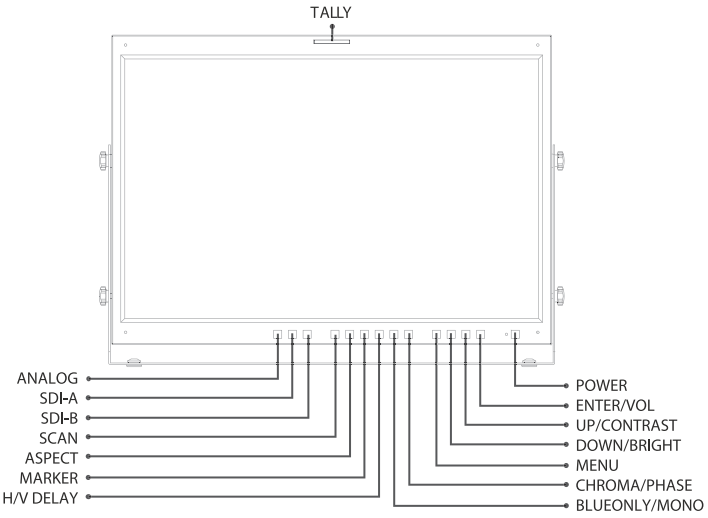
- **[BRIGHT] Knob**
  - Used to adjust the degree of brightness. - The value is selectable between -128 ~ 127.

- **[CHROMA] Knob**
  - Used to adjust the saturation of the image. - The value is selectable between -128 ~ 127.
  # This feature is not available in DVI Graphic mode and DVI Analog.

- **[CONTRAST] Knob**
  - Used to adjust the contrast.
  - The value is selectable between -128 ~ 127.

- **[VOLUME] Knob**
  - Used to adjust the volume for internal speaker and external output.
  - The value is selectable between 0 ~ 20.

LVM-242W FRONT



- **[ANALOG] Button/Lamp**
  - Used to select desired Analog/DVI input. (CVB1/2/3, S-Video, Component, RGB, DVI Digital, DVI Analog)
  - Press the button to activate the analog input menu-selection, then use UP and DOWN button to select desired input.

- **[SDI-A] / [SDI-B] Button/Lamp**
  - Used to select SDI-A/SDI-B input.

- **[SCAN] Button/Lamp**
  - Used to change the scan mode. Press the button to activate through the scan modes: OVER SCAN -> USER ASPECT -> ZERO SCAN -> UNDER SCAN -> 1:1 SCAN -> FIT WIDTH
  * See section "Other Functions [3]SCAN Button" for more information.
  # [USER ASPECT] : User can adjust width and height of the display.
  * See section "Other Functions [4] Pixel to Pixel and [5] User Aspect" for more information.

Name & Function of Each Part

- **[ASPECT] Button/Lamp**
  - Used to change the display ratio between 4:3 and 16:9.
    * Display ratio locks to 16:9 if the display ratio of input signal is 16:9.

- **[MARKER] Button/Lamp**
  - Used to activate/deactivate the Marker. The type of marker at work may be selected on the main menu.

- **[H/V DELAY] button/lamp**
  - Used to check horizontal sync and vertical sync simultaneously.

- **[BLUE ONLY]/[MONO] Button/Lamp**
  - Activates in the order of [Off]-[Blue Only]-[Mono]-[Focus Assist]-[Off]
  - Press the button to remove red and green from the input signal and display the screen only under a blue signal.
    Press the button again to activate mono mode.
    They are not available in RGB, DVI ANALOG, DVI DIGITAL and HDMI modes.
    # [Focus Assist] : Focus assist support feature.
    Use [Chroma] knob to control the sensitivity level(0~80) of Focus Assist. Maximum value is 80.

- **[CHROMA/PHASE] Button/Lamp**
  - Used to activate PHASE and Closed Caption feature and use UP/DOWN buttons to toggle through the values.
  - Feature activates differently in different input mode:
  - SDI-A/B input : Closed Caption.
  - Composite/S-Video input : PHASE

- **[MENU] Button**
  - Used to activate the main OSD Menu.

- **[DOWN/BRIGHT] Button**
  - Used to move within the menus during OSD menu activation and is also used to decrease the value of the selected feature.
  - It may also be used to control the bright value when the OSD menu is inactivated.

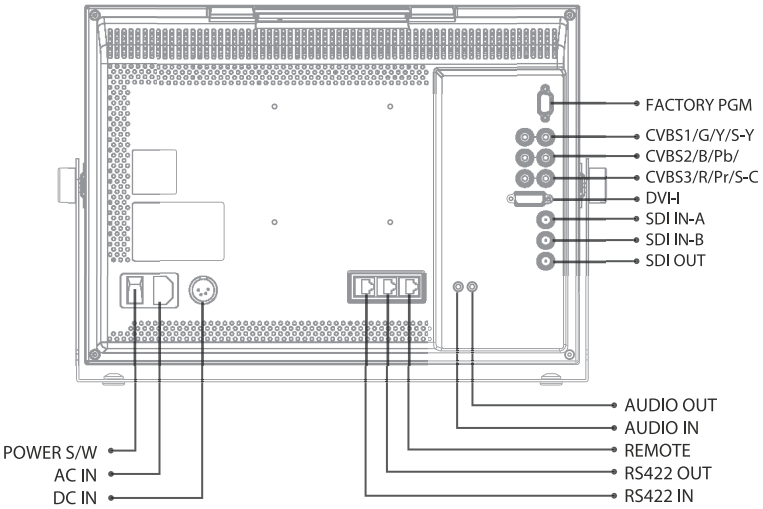
- **[UP/CONTRAST] Button**
  - Used to move within the menus during OSD menu activation and is also used to increase the value of selected feature.
  - It may also be used to control the contrast value when the OSD menu is inactivated.

- **[ENTER] Button**
  - Used to confirm a chosen value (or mode).
  - It may also be used for shortcut access to volume control when OSD menu is inactivated.

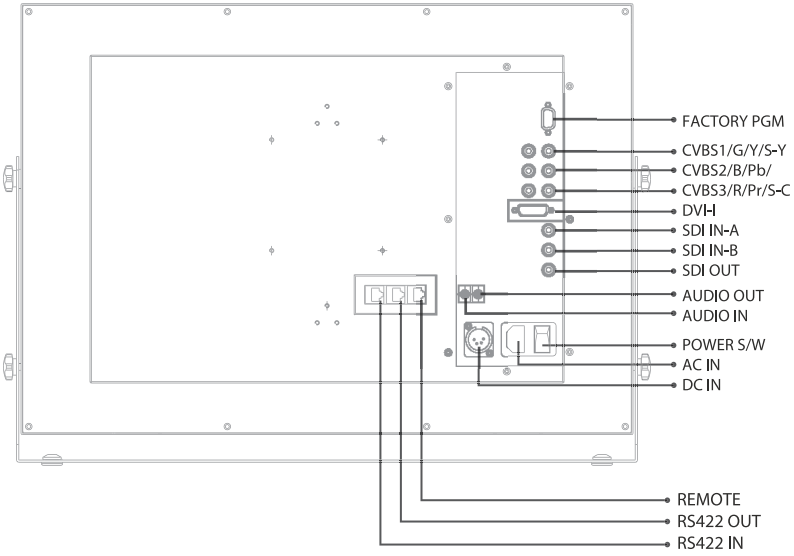
- **[POWER] Button**
  - Power On/Off button. LED lights in Red when the power is Off and lights in Green if the signal is normal. If the signal is unsupported or disconnected, LED flashes in yellow.

- **[TALLY] Lamp**
  - Tally lamp that can be toggled in green or red using the REMOTE(RJ-45) port or RS-422 serial communication.

LVM-172W REAR



LVM-242W REAR



Name & Function of Each Part

- **REMOTE (RJ-45)**
  - Provides connection to control equipment for external monitor control.
  - Features can be changed in the [REMOTE] section of OSD menu.

- **DVI-I (DVI-I)**
  - Signal input terminal for DVI ANALOG or DVI DIGITAL signal.

- **SDI IN-A/SDI IN-B (BNC)**
  - HD/SD-SDI signal input terminal.

- **SDI-OUT (BNC)**
  - HD/SD-SDI signal output terminal.

- **CVBS1/G/Y/S-Y (BNC)**
  - Signal input terminal used to feed the monitor COMPOSITE 1, S-VIDEO Y, COMPONENT Y and RGB G signals.

- **CVBS2/B/Pb (BNC)**
  - Signal input terminal used to feed the monitor COMPOSITE 2, RGB B and COMPONENT Pb signals.

- **CVBS3/R/Pr/S-C (BNC)**
  - Signal input terminal used to feed the monitor COMPOSITE 3, S-VIDEO C, COMPONENT Pr and RGB R signals.

- **AUDIO IN (phone jack)**
  - Internal speakers stereo audio input terminal.

- **AUDIO OUT (phone jack)**
  - Built in audio disembedder and internal speakers stereo audio output using mini jacks.

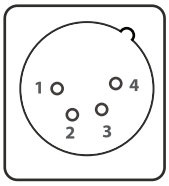
- **FACTORY PGM (D-SUB 15 pins)**
  - Input connector for FACTORY PGM allowing for firmware update and auto calibration.

- **DC IN (XLR, 4 pins)**
  - DC Power : LVM-172W : 12V or 24V, LVM-242W : 24V

- **~ AC IN**
  - AC power : 100V~240V 50/60Hz

- **POWER S/W**
  - Power switch

DC IN socket
1,2: GND
3,4: +12V/+24V



- **Video input :** Input video connection method

Connector	Composite	Component	RGB	S - Video
1	CVBS 1	Y	G	Y
2	CVBS 2	Pb	B	No Con.
3	CVBS 3	Pr	R	C

Warning!!
When using the product, make sure to connect the GND first before connecting the input signal line. The unit may not operate properly, if the input line is connected before the GND is connected.

Menu Organization & Adjustment

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

[1] Menu Organization

Below is the organization of the product's menu.



[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

Menu control sequence follows the order below:

1. Press MENU button to bring the OSD menu on the screen.
2. Display the desired sub menu with the UP/DOWN button.
3. After selecting a sub menu, press ENTER to select an item with the UP/DOWN button.
4. Press ENTER to select the desired item (verified by highlighted field text turning red)
5. Press ENTER to save the new value after adjusting the value with UP/DOWN button. (Verified by highlighted field returning to default black color)
6. Press MENU to remove OSD menu from the screen.

Menu Contents

[1] PICTURE

Below is the description for each function of the menu.



- **Brightness**
  - This item controls the degree of brightness between -128 ~ 127.
    #Brightness can be adjusted by using the [BRIGHT] control knob(LVM-172W) or [DOWN/BRIGHT] button (LVM-242W) on the front of the monitor.

- **Contrast**
  - This item controls the contrast ration between -128 ~ 127.
    # Contrast can be adjusted by using the [CONTRAST] control knob(LVM-172W) or [UP/CONTRAST] button(LVM-242W) on the front of the monitor.

- **Chroma**
  - This item controls saturation between -128 ~ 127.
    # Chroma can be adjusted by using the [CHROMA] control knob(LVM-172W) or [CHROMA/PHASE] button(LVM-242W) on the front of the monitor.

- **Phase**
  - This item controls phase value (Hue) between -128 ~ 128.
    # Phase can be adjusted by using the [PHASE] control button(LVM0172W) or [CHROMA/PHASE] button(LVM-242W) on the front of the monitor.

- **Aperture**
  - This item controls the picture sharpness between -12 ~ 12.
    # Sharpness can be adjusted by using the [APERTURE] control knob(LVM-172W).

- **NTSC Setup**
  - This item sets the IRE value under NTSC mode between 0 IRE and 7.5 IRE.
  - Only available in COMPOSITE 1/2/3 and S-VIDEO modes containing a NTSC signal.

- **Key Lock**
  - This item locks all buttons except power, input select, and menu buttons.
    * LVM-172W locks the knobs(APERTURE, BRIGHT, CHROMA, CONTRAST, VOLUME) also.

[2] PICTURE (DVI Analog)





- **Brightness**
  - This item controls the degree of brightness between -128 ~ 127.
    # Brightness can be adjusted by using the [BRIGHT] control knob(LVM-172W) or [DOWN/BRIGHT] button (LVM-242W) on the front of the monitor.

- **Contrast**
  - This item controls the contrast ratio between -128 ~ 127.
    # Contrast can be adjusted by using the [CONTRAST] control knob(LVM-172W) or [UP/CONTRAST] button(LVM-242W) on the front of the monitor.

- **Image Position**
  - This item controls the position(H/V) of the image in DVI Analog mode.

- **Phase**
  - This item controls phase value.
    # If phase is not set to correct value, image may display artifacts and out of focus.

- **Clocks/Line**
  - This item is adjust timing for signal sync.
    # If signal sync is not set to correct value, image may display flickering and drop.

- **Auto Adjustment**
  - This item adjusts the input siganl automatically. Phase, Clocks/Line, and Image Position are also adjusted.
    # if image doesn't display correctly after the Auto Adjustment, select it again for correct adjustment.
    Auto Adjustment activates automatically, when input signal resolution changes.

[3] COLOR



- **Color Temp**
  - This item controls color temperature and allows instant access to preset color temperature settings of 3200K, 5600K, 6500K, 9300K and USER 1/2/3.
  - In USER1/2/3 mode, user can define custom RGB GAIN and BIAS values.

- **Gain Red**
  - This item controls red gain value between -192 ~ 63.
    # Only available in USER1/2/3 mode.

- **Gain Green**
  - This item controls green gain value between -192 ~ 63.
    # Only available in USER1/2/3 mode.

- **Gain Blue**
  - This item controls blue gain value between -192 ~ 63.
    # Only available in USER1/2/3 mode.

- **Bias Red**
  - This item adjusts black level to control red color between -100 ~ 100
    # Only available in USER1/2/3 mode.

- **Bias Green**
  - This item adjusts black level to control green color between -100 ~ 100.
    # Only available in USER1/2/3 mode.

- **Bias Blue**
  - This item adjusts black level to control blue color between -100 ~ 100 .
    # Only available in USER1/2/3 mode.

- **Color Copy**
  - This item is used to copy pre-stored color temperature settings into a USER1/2/3 mode.
  - In USER mode, find and select the color temperature to be used as a starting point of custom color temperature.
    # Only available in USER1/2/3 mode.

[4] MARKER





- **MARKER**
  - This item selects the marker type when the MARKER is displayed on the screen.
  - Marker may only be activated by pressing the MARKER button on the front of the monitor.
  - 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, 4:3 ALT 14:9, 16:9 ALT 14:9, 16:9 ALT 4:3, AFD, USER .

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

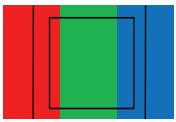
- **Center Marker**
  - This item displays the CENTER MARKER on the screen.
  - This function operates only after activating the MARKER function by pressing the MARKER button on the front of the monitor.

- **Safety Area**
  - This item controls the size of the SAFETY AREA.
  - Available types 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, 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**
  - This item activates 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 is performed as 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.
  - The degrees of darkness are between Off ~ 7.
  - Larger value means darker the marker mat is.

- **MARKER COLOR**
  - This item controls the color of the 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 ~ 7.

- **USER MARKER H1**
  - This item controls the position of the first user defined horizontal marker line.
  - Marker option USER needs to be selected.

- **USER MARKER H2**
  - This item controls the position of the second user defined horizontal marker line.
  - Marker option USER needs to be selected.

- **USER MARKER V1**
  - This item controls the position of the first user defined vertical marker line.
  - Marker option USER needs to be selected.

- **USER MARKER V2**
  - This item controls the position of the second user defined vertical marker line.
  - Marker option USER needs to be selected.

[5] REMOTE





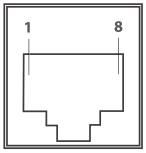
- This product provides a REMOTE CONTROL mode.
- The user may connect an RJ-45 jack to the REMOTE terminal on the rear of the unit and designate a function for each pin.
- The default settings are as follow:
  PIN 1 : ANALOG CHANNEL
  PIN 2 : DVI CHANNEL
  PIN 3 : DIGITAL_A CHANNEL
  PIN 4 : DIGITAL_B CHANNEL
  PIN 5 : TALLY R
  PIN 6: TALLY G
- PIN 7 is POWER ON/OFF use only, PIN 8 is GND.
- The selectable functions are as follows:

Menu Classification	Settable Values
PIN 1~6	NONE ANALOG CHANNEL DVI CHANNEL DIGITAL_A/B CHANNEL TALLY RED TALLY GREEN BLUE ONLY UNDERSCAN 1:1 SCAN ASPECT HVDELAY Mono 16:9 MARKER, 15:9 MARKER, 14:9 MARKER, 13:9 MARKER, 4:3 MARKER, 4:3 ON AIR MARKER, 1.85:1 MARKER, 2.35:1 MARKER, 1.85:1 & 4:3 MARKER CENTER MARKER SAFETY AREA 80%,85% SAFETY AREA 88%, SAFETY AREA 90%, SAFETY AREA 93%, SAFETY AREA 100% DynamicUMD

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



MONITOR ID

- Sets the ID of each monitor for the TV Logic control protocol or DYNAMIC UMD using RS-422/485 communication.

UMD DISPLAY

- Sets input source ID mode.
- Available modes are OFF, UMD, ANC, D-UMD(S-8C), D-UMD(S-16C) and D-UMD(D-8C).
- 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).

UMD CHARACTER

- Customizes the characters for Under Monitor Display.
- Alphabets, numbers and special symbols are available.
- Maximum of 8 characters are available.

D-UMD TALLY TYPE

- Tally type configuration setting in D-UMD(D-8C), UMD DISPLAY.
- Configuration values are DEFAULT and USER COLOR.
  * DEFAULT : Existing TV Logic operating system (VRT)
  * USER COLOR : User configuration settings on each TALLY color type.
- TALLY1 COLOR ~ TALLY4 COLOR are activated when USER COLOR is selected.

TALLY1 COLOR ~ TALLY4 COLOR

- This item sets the color of each TALLY1, TALLY2, TALLY3 and TALLY4 .
- Available color settings are Red, Green and Yellow.

<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.



* **Tally Type – Default**

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

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

- D-8C(Dual 8 Character)

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

*** 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



[6] WAVE/FOCUS PART



- **WAVEFORM/VECTOR**
  - This function sets the Waveform and Vectorscope. This feature is available in SDI mode.
  - Selectable features: OFF, WAVEFORM, VECTOR
    * WAVEFORM : Displays the shape and form of luminance level of a signal.
    * VECTOR : Displays color components of the input signals .

- **WAVEFORM INTENSITY**
  - This item controls the brightness of the WAVEFORM/VECTOR display.
  - Available values are between 1 ~ 63. The higher the number the brighter the waveform will be.

- **WAVEFORM TRANS.**
  - This item controls 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.

- **WAVEFORM SIZE**
  - This item controls the size of WAVEFORM/VECTOR.
  - Available modes are SMALL and LARGE.

- **WAVEFORM POSITION**
  - This item controls the position of WAVEFOR/VECTORY.
  - Available positions are Right Bottom, Mid Bottom, Left Bottom.

- **FOCUS ASSIST LEVEL**
  - This item controls focus assist level.
  - Available values are between 0 ~ 80. Larger value means greater detail detection.
  - Focus assist color is presented when the difference between the border selections exceeds the selected value.
  - This features is only available when FOCUS ASSIST mode is selected. FOCUS ASSIST mode can be selected by pressing [BLUE ONLY/MONO] button.

- **FOCUS ASSIST COLOR**
  - This item selects the color of FOCUS ASSIST.
  - Available values are red, green and blue.

[7] AUDIO PART



- **AUDIO VOLUME**
  - This item controls the embedded audio output volume for the internal speakers and [AUDIO OUT] on the back of the monitor
  - Available values are between 0 ~ 20.

- **EM. AUDIO LEFT**
  - This item controls embedded audio channel for left audio out of internal speaker and [AUDIO OUT] in the back of the monitor.
  - Available values are between CH 1 ~ CH 16.

- **EM. AUDIO RIGHT**
  - This item controls embedded audio channel for right audio out internal speaker and [AUDIO OUT] in the back of the monitor.
  - Available values are between CH 1 ~ CH 16.

- **LEVEL METER**
  - This item controls the audio level meters.
  - Available modes are OFF and 16 CH.

- **LEVEL METER DISPLAY**
  - This item controls display method of audio level meter
  - Available modes are PAIR and GROUP.

- **LEVEL METER REFERENCE**
  - This item sets 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 SIZE**
  - This item controls the size of the audio level meters.
  - Available modes are NORMAL and LARGE.

[8] SYSTEM PART (1/2)



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

- **USER CONFIG SET**
  - This item saves three user configurations.
  - Available modes are USER1, USER2 and USER3.
  - Effective items are MARKER, CENTER MARKER, SAFETY AREA, MARKER MAT, MARKER COLOR, BRIGHT, CONTRAST CHROMA, PHASE and APERTURE.

- **MONITOR ID**
  - This item sets the ID of each monitor for the TVLogic control protocol or DYNAMIC UMD using RS-422/485 communication.
  - Available values are between 0 ~ 99.

- **UMD DISPLAY**
  - This item sets UMD, ANC and DYNAMIC UMD.
    * UMD : Displays user customized characters on screen.
    * ANC: Displays characters embedded in SDI signal.
    * DYNAMIC UMD: Displays incoming character or tally signal from TSL Protocol.

- **UMD CHARACTER**
  - This item is used to customize the characters for UMD.
  - Alphabets, numbers and special symbols are available.
  - Maximum of 5 characters.

- **UMD SIZE**
  - This item controls the size of UMD DISPLAY.

- **FIRMWARE VERSION**
  - This item is the firmware version of the system.

- **SERIAL NUMBER**
  - This item is the serial number of system.

[9] SYSTEM PART (2/2)



- **TIME CODE ENABLE**
  - This item displays the time code.
  - Available modes are OFF, VITC and LTC.

- **CLOSED CAPTION**
  - This item controls closed caption.
  - Available modes are OFF, 708, 608(LINE21) and 608(ANC).
  * 608 : CEA-608-B, 708 : CEA-708-C standards display only.

- **INTERNAL PATTERN**
  - This item generates internal white pattern. The white level can be set between 0% and 100% in 5% increments.

- **BACK LIGHT**
  - This item controls the backlight level of the LCD panel.

- **DITHERING**
  - This item enables the 10-bit dithering.

- **LOOK-UP TABLE**
  - This item enables measured Look-Up Table.

- **OSD POSITION**
  - This item controls the OSD position.
  - Available values are CENTER, R-T, R-B, L-B and L-T.
  - If WAVEFORM/VECTOR is activated, R-B and L-B will be unavailable.

- **LOCK ENABLE**
  - Only applicable to LVM-172WS model.
  - Enable code input item to convert LVM-172WS(SD) to LVM-172W(HD) model.

Other Functions – Input select(LVM-172W)

ANALOG INPUT MENU



- **LVM-172W is capable of processing all input signals usable in ANALOG mode.**

1. Press [ANALOG] button on the front of the monitor and activate the OSD menu as shown on the left.
   Seledt the desired input by using the [UP]/[DOWN] button and press the [ENTER] button to confirm.

2. Input signal resolution displays on the bottom of OSD menu.

3. Press ANALOG button again to remove the OSD menu from display.

#If no image displays after selecting the desired input mode, check and make sure that your connection is not lose or disconnected.

DVI INPUT MENU



- **LVM-172W is capable of processing DVI Digital/Analog input signal.**

1. Press [DVI] button on the front of the monitor and activate the OSD menu as shown on the left.
   Select the desired input by using the [UP]/[DOWN] button and press the [ENTER] button to confirm.

2. Input signal resolution displays on the bottom of OSD menu.

3. Press [DVI] button again to remove the OSD menu from display.

If no image displays after selecting the desired input mode, check and make sure that your connection is not lose or disconnected.

SDI INPUT MENU



- **LVM-172W is capable of processing two SDI input signals.**

1. Press [SDI] button on the front of the monitor.

2. Input signal resolution displays on the bottom of OSD menu.

3. Press [SDI] button again to remove the OSD menu from display.

#If no image displays after selecting the desired input mode, check and make sure that your connection is not lose or disconnected.

Other Functions – Input select(LVM-242W)

ANALOG INPUT MENU



- **LVM-242W is capable of processing all input signals usable in ANALOG mode..**

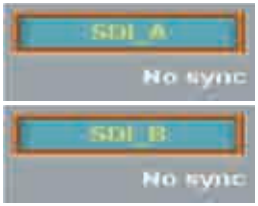
1. Press [ANALOG] button on the front of the monitor and activate the OSD menu as shown on the left.
   Seledt the desired input by using the [UP]/[DOWN] button and press the [ENTER] button to confirm.

2. Input signal resolution displays on the bottom of OSD menu.

3. Press ANALOG button again to remove the OSD menu from display.

   # If no image displays after selecting the desired input mode, check and make sure that your connection is not lose or disconnected.

SDI INPUT MENU



- **LVM-242W is capable of processing two SDI input signals.**

1. Press [SDI] button on the front of the monitor.

2. Input signal resolution displays on the bottom of OSD menu.

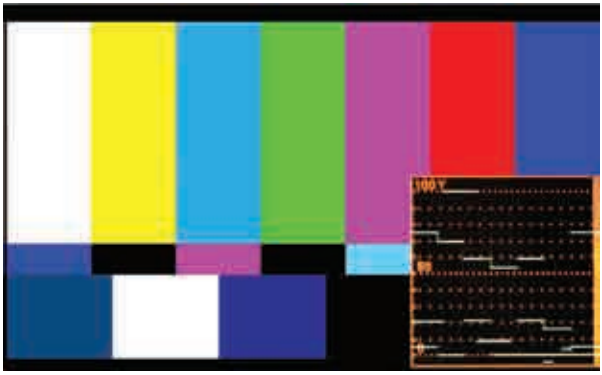
3. Press [SDI] button again to remove the OSD menu from display.

   #If no image displays after selecting the desired input mode, check and make sure that your connection is not lose or disconnected.

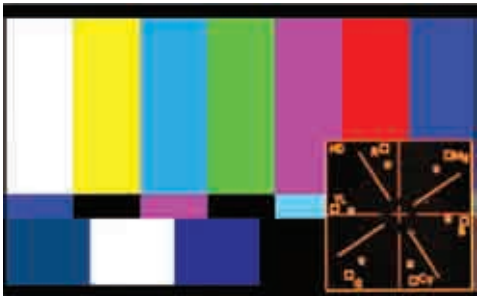
Other Functions

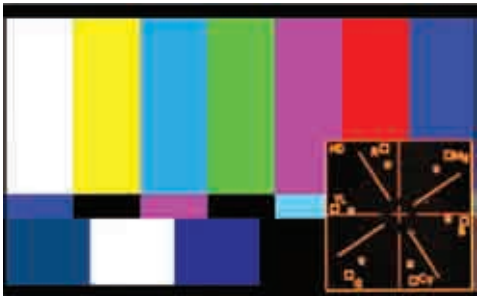
WAVEFORM FEATURE (Only available in SDI mode)

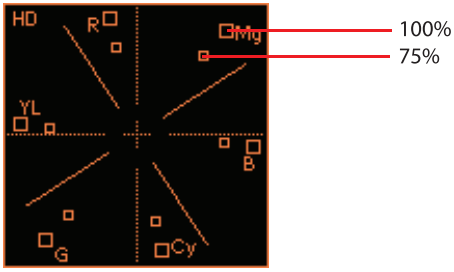
- **WAVEFORM :** Displays the shape and form of luminance level of a signal.



- **VectorScope:** Displays color components 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.







USER ASPECT



- User can change the aspect ratio of display by using User Aspect feature.
- Press [SCAN] button to activate OSD menu as shown on the left.
- Press [ENTER] button to move between Width and Height.









- Use [UP/DOWN] button to adjust the value.
- **Available width size range:**
  - LVM-242W : Min[100] ~ Max[1920]
  - LVM-172W : Min[100] ~ Max[1366]
- **Available height size range:**
  - LVM-242W : Min[100] ~ Max[1200]
  - LVM-172W : Min[100] ~ Max[768]
- **Adjusted image always displays in the center of the screen.**
  Example) If user wishes to change 16:9 aspect ratio image to 2.35:1 aspect ratio, change 1920x1080 resolution to 1920 x 817 (LVM-242W) or 1366x581(LVM-172W) by adjusting width and height of the image in USER ASPECT mode.

DVI Analog Input Signal Format

DVI ANALOG

Resolution (Source)	DotClock [MHz]	f H (kHz)	f V (Hz)	Sync (H/V)
640 x 350 70Hz (IBM)	25.175	31.469	70.086	P/N
640 x 480 60Hz (IBM)	25.175	31.469	59.940	N/P
720 x 400 70Hz (IBM)	28.322	31.469	70.087	N/P
640 x 480 67Hz (MAC)	30.240	35.000	66.667	N/N
832 x 624 75Hz (MAC)	57.284	49.726	74.551	N/N
1152 x 870 75Hz (MAC)	100.00	68.681	75.062	N/N
640 x 480 75Hz (VESA)	31.500	37.500	75.000	N/N
640 x 480 72Hz (VESA)	31.500	37.861	72.809	N/N
800 x 600 56Hz (VESA)	36.000	35.156	56.250	N/N
800 x 600 60Hz (VESA)	40.000	37.879	60.317	P/P
800 x 600 75Hz (VESA)	49.500	46.875	75.000	P/P
800 x 600 72Hz (VESA)	50.000	48.077	72.188	P/P
1024 x 768 60Hz (VESA)	65.000	48.363	60.004	N/N
1024 x 768 70Hz (VESA)	75.000	56.476	70.069	N/N
1024 x 768 75Hz (VESA)	78.750	60.023	75.029	P/P
1152 x 864 75Hz (VESA)	108.00	67.500	75.000	P/P
1280 x 1024 60Hz (VESA)	108.00	60.000	60.000	P/P
1280 x 1024 75Hz (VESA)	135.00	79.976	75.025	P/P

Supported Video Mode	480/60p, 576/50p , 720/50p, 720/60p, 1080/60p

DVI Digital Input Signal Format

DVI DIGITAL

Resolution (Source)	DotClock [MHz]	f H (kHz)	f V (Hz)	Sync (H/V)
640 x 350 70Hz (IBM)	25.175	31.469	70.086	P/N
640 x 480 60Hz (IBM)	25.175	31.469	59.940	N/P
720 x 400 70Hz (IBM)	28.322	31.469	70.087	N/P
640 x 480 67Hz (MAC)	30.240	35.000	66.667	N/N
832 x 624 75Hz (MAC)	57.284	49.726	74.551	N/N
1152 x 870 75Hz (MAC)	100.00	68.681	75.062	N/N
640 x 480 75Hz (VESA)	31.500	37.500	75.000	N/N
640 x 480 72Hz (VESA)	31.500	37.861	72.809	N/N
800 x 600 56Hz (VESA)	36.000	35.156	56.250	N/N
800 x 600 60Hz (VESA)	40.000	37.879	60.317	P/P
800 x 600 75Hz (VESA)	49.500	46.875	75.000	P/P
800 x 600 72Hz (VESA)	50.000	48.077	72.188	P/P
1024 x 768 60Hz (VESA)	65.000	48.363	60.004	N/N
1024 x 768 70Hz (VESA)	75.000	56.476	70.069	N/N
1024 x 768 75Hz (VESA)	78.750	60.023	75.029	P/P
1152 x 864 75Hz (VESA)	108.00	67.500	75.000	P/P
1280 x 1024 60Hz (VESA)	108.00	60.000	60.000	P/P
1280 x 1024 75Hz (VESA)	135.00	79.976	75.025	P/P

Supported Video Mode	480/60i, 480/60p, 576/50i, 576/50p , 720/50p, 720/60p, 1080/50i, 1080/60i, 1080/24p, 1080/25p, 1080/30p, 1080/50p, 1080/60p

Product Specifications

LVM-172W

Input	1 x DVI-I	DVI IN / VGA IN
	1 x HDMI	-
	3 x BNC	Analog Input
	2 x BNC	SDI A/B Channel Input
	1 x BNC	-
Output	3 x BNC	Analog Loop Through Output
	2 x BNC	-
	1 x BNC	SDI A/B Selected Channel Output (Active Through-Out)
Input Signal	Analog	Composite / S-Video / Component / RGB
	HD-SDI	1.485Gbps
	SD-SDI	270Mbps
	HDMI	-
	DVI-Analog	640×480/800×600/1024×768/1280×768/1280×1024/1366×768/720×400
	DVI-Digital (Graphic)	640×480/800×600/1024×768/1280×768/1280×1024/720×400
	DVI-Digital (Video)	1080p(24/25/30/50/60)/1080i(50/60)/720p(50/60)/480i(60)/480p(60)/576i(50)/576p(50)
Analog Input Spec	Composite	1.0Vpp (With Sync)
	S-Video	1.0Vpp (Y With Sync), 0.286 Vpp (C)
	Component	1.0Vpp (Y With Sync), 0.7Vpp (Pb,Pr)
	RGB	1.0Vpp (G With Sync), 0.7 Vpp (B,R)
SDI Input Signal Formats	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		Analog stereo (Phone Jack) / Internal Speaker(Stereo)
LCD	Size	17"
	Resolution	1366×768 (16:9)
	Dot Pitch	0.273×0.273 mm
	Color	16.7M(true), 24bit
	Viewing Angle (Typical)	H : 178 degrees
		V : 178 degrees
	Luminance of White	350cd (center)
	Contrast	900:1
	Display Area	372.9×209.6 mm
Power		AC 100 - 240V / DC 12V / DC 24V
Power Consumption (Approx.)		60 Watts
Operating Temperature		0 °C to 40 °C (32 °F to 104 °F)
Storage Temperature		-20 °C to +60 °C (-4 °F to 140 °F)
Accessory		AC Power Code / NDF Screw
Option		Carrying Case / V-Mount / 19" Rack Mountable Kit(7U) / ND Filter / Sun-Hood

* Above specifications may be changed without notice

Product Specifications

LVM-242W

Input	1 x DVI-I	DVI IN / VGA IN
	1 x HDMI	-
	3 x BNC	Analog Input
	2 x BNC	SDI A/B Channel Input
	1 x BNC	-
Output	3 x BNC	Analog Loop Through Output
	2 x BNC	-
	1 x BNC	SDI A/B Selected Channel Output (Active Through-Out)
Input Signal	Analog	Composite / S-Video / Component / RGB
	HD-SDI	1.485Gbps
	SD-SDI	270Mbps
	HDMI	-
	DVI-Analog	640×480/800×600/1024×768/1280×768/1280×1024/720×400
	DVI-Digital (Graphic)	640×480/800×600/1024×768/1280×768/1280×1024/720×400/1600×1200/1920×1200/1920×1080
	DVI-Digital (Video)	1080p(60/59.94/50)/1080i(60/59.94/50)/720p(60/59.94/50)/480i(59.94)/480p(59.94)/576i(50)
Analog Input Spec	Composite	1.0Vpp (With Sync)
	S-Video	1.0Vpp (Y With Sync), 0.286 Vpp (C)
	Component	1.0Vpp (Y With Sync), 0.7 Vpp (Pb,Pr)
	RGB	1.0Vpp (G With Sync), 0.7 Vpp (B,R)
SDI Input Signal Formats	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		Analog stereo (Phone Jack) / Internal Speaker(Stereo)
LCD	Size	24"
	Resolution	1920×1200 (16:10)
	Dot Pitch	0.27 mm
	Color	16.7M(true), 24bit
	Viewing Angle (Typical)	H : 178 degrees
		V : 178 degrees
	Luminance of White	400cd/m^2 (center)
	Contrast	1000:1
	Display Area	518×324 mm
Power		AC 100 - 240V / DC 24V
Power Consumption (Approx.)		112 Watts
Operating Temperature		0 °C to 35 °C (32 °F to 95 °F)
Storage Temperature		-20 °C to +60 °C (-4 °F to 140 °F)
Accessory		AC Power Code / NDF Screw
Option		Carrying Case / 19" Rack Mountable Kit / ND Filter

* Above specifications may be changed without notice

Product Lineup



- **LVM-071W**
  1. LCD Resolution : 800 x 480 (15:9)
  2. Color : 16.7M (true 24bit)
  3. Contrast - 700 :1
  4. Viewing Angle : 130 (H) / 110 (V)
  5. Weight : 1Kg (2.2 lbs)



- **LVM-084**
  1. LCD Resolution : 1024 x 768 (4:3)
  2. Color : 16.7M(true 24bit)
  3. Contrast - 400 :1
  4. Viewing Angle : 170 (H) / 170 (V)
  5. Weight : 2.1Kg (4.63 lbs)



- **LVM-091W**
  1. LCD Resolution : 800 x 480 (15:9)
  2. Color : 16.7M(true 24bit)
  3. Contrast - 350 :1
  4. Viewing Angle : 170 (H) / 170 (V)
  5. Weight : 2.8Kg (6.17 lbs)



- **LVM-172W / LVM-173W-3G**
  1. LCD Resolution : 1366 x 768 (16:9)
  2. Color : 16.7M (true 24bit)
  3. Contrast - 900 :1
  4. Viewing Angle : 178 (H) / 178 (V)
  5. Weight : 7Kg (15.4 lbs)



- **LVM-242W / LVM-243W-3G**
  1. LCD Resolution : 1920 x 1200 (16:10)
  2. Color : 16.7M(true 24bit)
  3. Contrast - 1000 :1
  4. Viewing Angle : 178 (H) / 178 (V)
  5. Weight : 11Kg (24.2 lbs)

Product Lineup



- **LVM-323W-3G**
  1. LCD Resolution : 1920 x 1080 (16:9)
  2. Color : 1.06 Billion (10bit, Dither)
  3. Contrast - 1300 :1
  4. Viewing Angle : 178 (H) / 178 (V)
  5. Weight : 21Kg (47.3 lbs)



- **LVM-403W-3G**
  1. LCD Resolution : 1920 x 1080 (16:9)
  2. Color : 16.7M (true 8bit)
  3. Contrast - 3000 :1
  4. Viewing Angle : 178 (H) / 178 (V)
  5. Weight : 35Kg (77.2 lbs)



- **LVM-463W-3G**
  1. LCD Resolution : 1920 x 1080 (16:9)
  2. Color : 16.7M (true 8bit)
  3. Contrast - 3000 :1
  4. Viewing Angle : 178 (H) / 178 (V)
  5. Weight : 42Kg (92.6 lbs)



- **LVM-553W-3G**
  1. LCD Resolution : 1920 x 1080 (16:9)
  2. Color : 16.7M (true 8bit)
  3. Contrast - 4000 :1
  4. Viewing Angle : 178 (H) / 178 (V)
  5. Weight : 48Kg (105.8 lbs)

Optional Accessories



ND Filter 17" 24"



External Filter 7" 9"





Rack Mountable Kit 7" 8.4" 9" 15" 17" 24"



Tripod Head 7" 8.4" 9"



V-Mount 15" 17" 8.4"





Hood 7" 9" 15" 17"











Carrying Case 7" 8.4" 9" 15" 17" 24" 32" 40" 46" 55"

RACK MOUNT ANY DISPLAY UP TO 24”



7 inch



8.4 inch



9 inch



15 inch



17 inch



24 inch

Developed by

TVlogic

Digital Broadcasting System

FOR MORE INFORMATION PLEASE VISIT : http://www.tvlogic.tv

12F, ACE HIGH-END TOWER 8, 345-4 Gasan-Dong, Geumchoen-Gu, Seoul, 153-802, Korea

Tel : +82-70-8668-6611, Fax : +82-2-6123-3202, Email: sales@tvlogic.co.kr