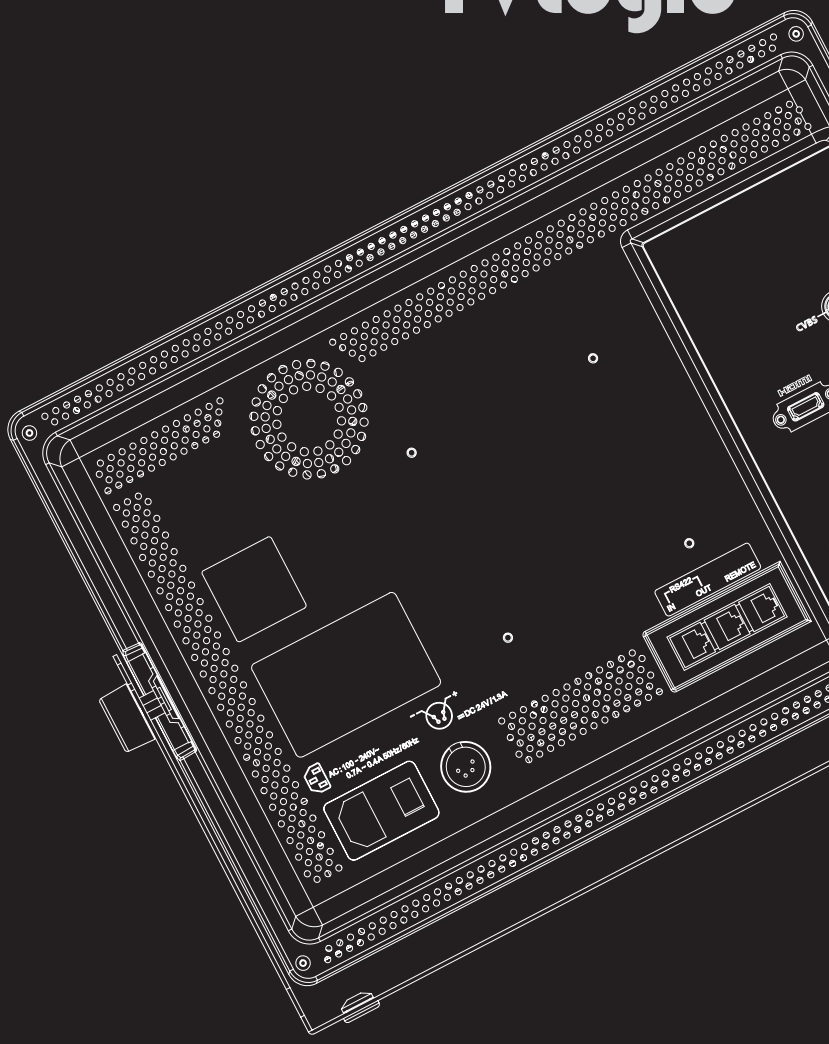
TVlogic®

LVM-180A

MULT FORMAT LCD Monitor

Operation manual_V1.1





TVlogic® Always ON-AIR

FCC (Federal Communications Commission)

This equipment has been tested and found to comply with the limits for class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interface when the equipment is operated in a commercial environment.
This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential to correct the interference at his own expense

CAUTION: Change or modifications not expressly approved by the manufacturer responsible for compliance could void the
user's authority to operate the equipment.

Disposal of Old Electrical & Electronic Equipment

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

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01 CAUTION

- Always use set voltage.
  - AC 100 ~ 240V (50~60Hz) or DC 12V

- Apply waterproof measures when using the monitoroutdoors.

- 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.

- 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 in 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.
  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.

- When mounting the product be sure to install the product according to the method recommended by the manufacturer.

- 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.

01 CAUTION

- 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 bath tub, washbasin, kitchen sink and laundry tub, swimming pool and in a wet basement.

- Keep the product away from direct sunlight.

- 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.

- Infrared devices can cause noise or malfunction under condition as below.
  a. Parts of the body come into contact with the infrared transmitter or acoustic device.
  b. Obstacles can cause electrical changes if there is a partition in the middle or in the wall.
  c. Exposure to radio interference from medical equipment, microwave ovens, wireless LAN devices, etc.
  with the same frequency band.

- 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.

- When installing the product on the rack, the inside of the product would be overheated due to heat from other devices nearby and the decreased air circulation, which could damage to the monitor. To prevent the damage, please have enough space for the monitor and use fans to avoid heat and maintain the operating temperature.
  (Refer to the specifications of the product).

- 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.

02 MAIN FEATURES

LVM-180A contains the following features :

- **Compatible with varied SDI signals**
  - The product is compatible with varied SD/HD/3G(A/B)-SDI 480i,576i,720p,1080i/p,1080psf.

- **Compatible with analog signals**
  - The product is compatible with analog signals - CVBS
- HDMI/DVI Digital(HDCP) / Analog input support
  - HDMI, DVI digital/analog(VGA) input is available without any other accessories.

- **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/Luma(Y') zone check/Audio Level Meter support**
  - Waveform & Vector Scope support
  - Luma(Y') zone check support(False color)
  - Embedded Audio Level Meter support

- **Luma(Y') zone check(Color/Zebra type)/ Range error Function**

- **Audio in & out**
  - Built-in internal speaker (Embedded audio & External audio in)
  - Stereo audio out using phone jack & external audio in.

- **Knob Control**
  - Easy to adjust user configuration using the control knobs.

- **BLUE ONLY/MONO/Focus-Assist/H/V delay**

- **Internal pattern generator(0~100% Gray/ Colorbar+Pluge**

- **Varied Markers & Safety Areas**
  - Center Marker, Safety Area Marker, Aspect Marker, Display Size(Scan)

- **Wide screen compatible**
  - Wide screen for 16:9 aspect monitoring.

- **AC/DC Compatible**
  - Basically, this product is powered by a normal AC source, and is also compatible with DC.

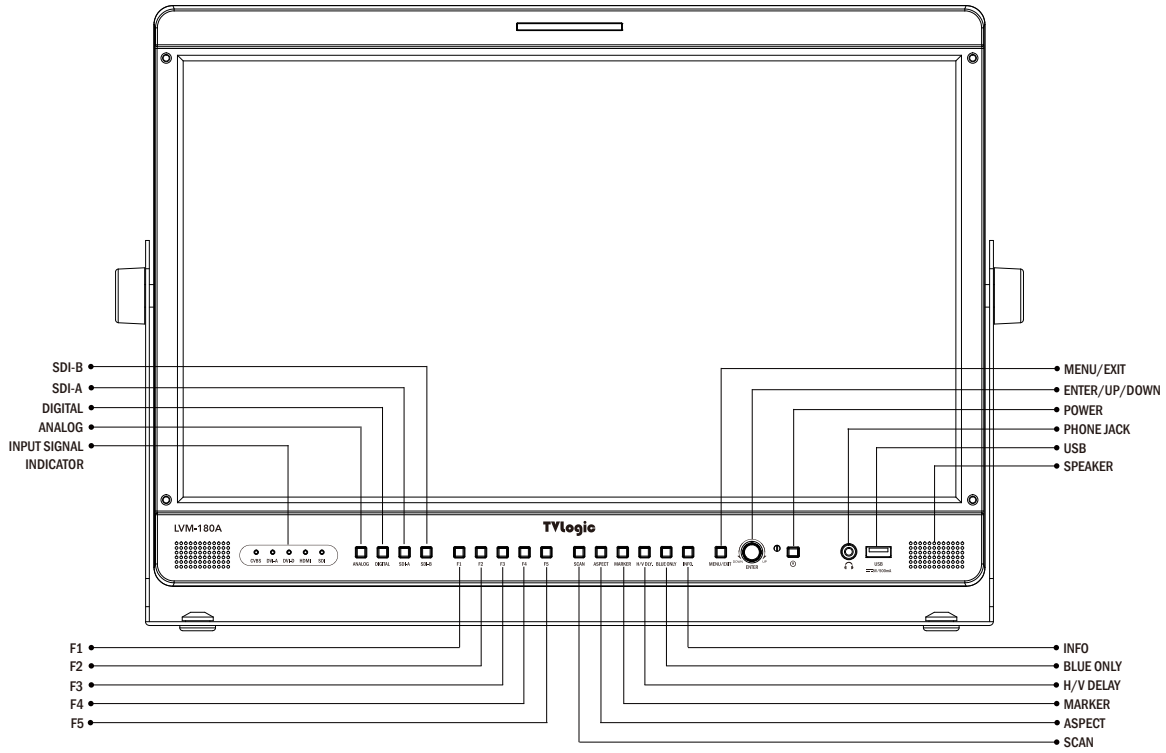
- **Remote control function**
  - The product can be remotely controlled using external switch or RS-422 communication.

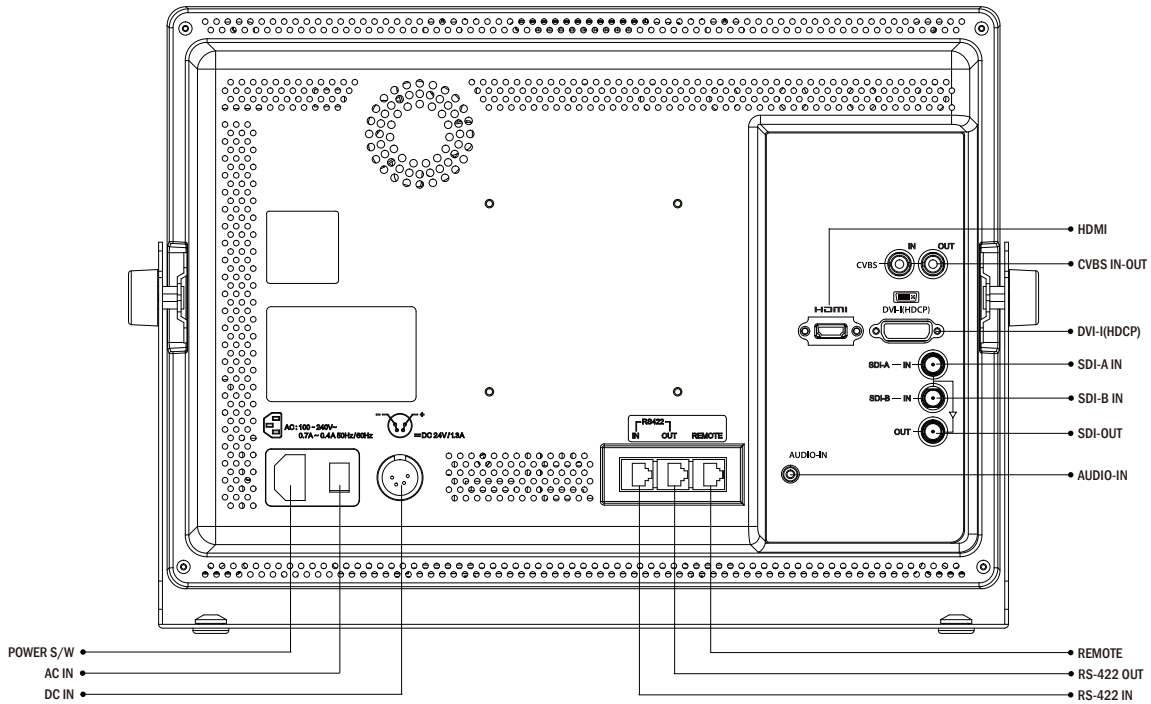
- **RS422/UMD feature support**
  - This product supports protocols provided by TVLogic or a TSL protocol.

- **Additional Features**
  - Wide Viewing Angle, Loop Through (SDI/ Analog), VESA mounting, Easy to operate OSD user interface, Rack Mountable Design.

03 CONTROLS & FUNCTIONS

LVM-180A ALL PART (FRONT / REAR)





03 CONTROLS & FUNCTIONS

LVM-180A FRONT

- **[INPUT SIGNAL INDICATOR] Lamp**
  - Used to display the current input mode.
    CVBS: Composite, DVI-A: DVI Analog
    DVI-D: DVI Digital, HDMI: HDMI
    SDI: SDI-A / B

- **[ANALOG] Button/Lamp**
  - Used to select desired Analog input.
  - Press the button to activate the analog input menuselection, then use the Knob to select the desired input.

  *Please refer to "7. Button Functions [1] ANALOG Button" for more information.

- **[DIGITAL] Button/Lamp**
  - Used to select desired Digital input. (HDMI, DVI Digital)
  - Press the Digital Button to activate the Digital input menuselection, then use the Knob to select desired input.

  *Please refer to "7. Button Functions [2] DIGITAL" for more information.

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

- **[F1 ~ F5] Button/Lamp**
  - Performs the function that the user sets as hot-keys.
  - The selectable hot-key menu list comes up when you hold the key for 2 seconds. You can select the hot-key functions from it.

- **[SCAN] Button/Lamp**
  - Used to change the scan mode.

  *Please refer to "8. Other Functions [1] SCAN" for more information.

- **[ASPECT] Button/Lamp**
  - Used to change the display ratio between 4:3 and 16:9.
  - Activates in the order of [4:3]-[2.35:1]-[1.85:1]-[15:9]-[16:10]-[AUTO]-[16:9].

- **[MARKER] Button/Lamp**
  - Used to activate/deactivate the Marker.
  - The Marker is normally displayed when you select Aspect ratio you want in OSD Menu.

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

- **[BLUE ONLY/MONO] Button/Lamp**
  - 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.
  - This function is not activated in the RGB, DVI ANALOG, DVI DIGITAL, HDMI modes.

- **[INFO.] Button**
  - Displays the current function and setting of the monitor.

- **[MENU/EXIT] Button/Lamp**
  - Activates OSD menu.

- **[ENTER/UP/DOWN] Knob**
  - Used to confirm a chosen value.
  - Used to move the cursor in OSD menu.

- **[POWER] Button/Lamp**
  - Turns on or off the monitor power.

- **[OPERATE] Lamp**
  - Indicates the status of power connection and monitor operation.
  - The LED is off when the power is off.
  - The LED is red when the monitor is in the waiting mode with power on.
  - The LED is green when the monitor is operating.

- **[AUDIO OUT] (Phone jack)**
  - Outputs dis-embedded audio signal, HDMI audio signal or stereo signal from outside through internal speaker or phone jack.

- **[USB]**
  - Updates new firmware and color calibration.

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

03 CONTROLS & FUNCTIONS

LVM-180A REAR

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

- **[RS422 IN/OUT] (RJ-45)**
  - Controls the monitor by a protocol provided by TVLogic or supports TSL protocol.

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

- **[HDMI(HDCP)] (HDMI)**
  - Signal input terminal for HDMI signal.

- **[CVBS IN] (BNC)**
  - Signal input terminal for COMPOSITE signal.

- **[CVBS OUT] (BNC)**
  - Signal output terminal for COMPOSITE input signal through CVBS-IN.

- **[SDI-IN A] (BNC)**
  - Signal input terminal for 3G/HD/SD SDI signal.

- **[SDI-IN B] (BNC)**
  - Signal input terminal for 3G/HD/SD SDI signal.

- **[SDI-OUT] (BNC)**
  - Signal output terminal for 3G/HD/SD SDI input signal through SDI-IN.

* SDI Output is not activated when the unit is turned off or in Standby mode.

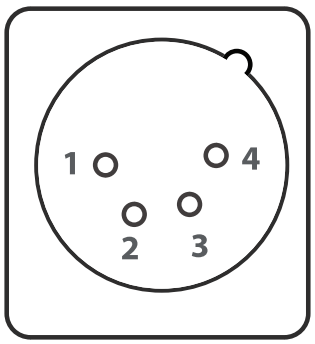
- **[Audio In] (PHONE JACK)**
  - Inputs external audio.

- **[AC IN]**
  - 100 ~ 240V AC 50/60Hz

- **[POWER S/W]**
  - Power On/Off switch

- **[DC IN]**
  - 12V DC

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



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

04 MENU ORGANIZATION & ADJUSTMENT

MENU ORGANIZATION & MENU ADJUSTMENT & MENU ADJUSTMENT PROCEDURE

[1] Menu Organization

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



[2] Menu Adjustment

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

[3] Menu Adjustment Procedure

- **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 knob.
3. After selecting a sub menu, press ENTER to select an item with the UP/DOWN knob.
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 knob. (Verified by highlighted field returning to default black color)
6. Press MENU to remove OSD menu from the screen.

04 MENU ORGANIZATION & ADJUSTMENT

MENU ORGANIZATION & MENU ADJUSTMENT & MENU ADJUSTMENT PROCEDURE

[4] Menu Tree

Picture	Brightness
	Contrast
	Chroma
	Phase
	Aperture
	NTST Setup
	Key Lock
	Output Mode Select
	Image Position (DVI Analog)
	Clocks/Line (DVI Analog)
	Auto Adjustment (DVI Analog)
Color	Color Temp.
	Gain Red
	Gain Green
	Gain Blue
	Bias Red
	Bias Green
	Bias Blue
	Color Copy
	Gamma
Marker	Marker
	Center Marker
	Satefy Area
	Fit Marker
	Marker Mat
	Marker Color
	Thickness
	User Marker H1
	User Marker H2
	User Marker V1
	User Marker 2

GPI/UMD	PIN 1
	PIN 2
	PIN 3
	PIN 4
	PIN 5
	PIN 6
	PIN 7
	PIN 8
	Group ID
	Monitor ID
	RS422 buad rate
	UMD Display
	UMD Charactor
	UMD charactor color
	UMD B.G trans.
	UMD size
	D. UMD tally type
	Tally1 color
	Tally1 color
	Tally1 color
	Tally1 color

04 MENU ORGANIZATION & ADJUSTMENT

MENU ORGANIZATION & MENU ADJUSTMENT & MENU ADJUSTMENT PROCEDURE

[4] Menu Tree

Waveform	Waveform type
	Waveform Intensity
	Waveform Trans.
	Waveform Size
	Line Waveform
	Select Line Position
	Luma(Y') Zone Check
	Luma(Y') Zone Adjust
	Range Error
	Y Min
	C Max
	C Min
	Y Picture Blink
	C Picture Blink
Audio	Volume
	Em. Audio Left
	Em. Audio Right
	Level Meter
	Level Meter Group
	Level Meter Display
	Level Meter Reference
	Level Meter Size
	Peak Decay Time

DISPLAY & SET	System Default
	Eco Saving
	User Config Set
	OSD Position
	Key LED
	Firmware Version
	Internal Pattern
	3G Format
	Back Light
	Closed Caption
	Time Code Enable
	Focus Assist
	Focus Assist Color
	Focus Assist Level
	S/W Upgrade
	S/W Upgrade Start

05 MENU OPERATIONS

[1] PICTURE



- **Brightness**
  - This item controls the degree of brightness between [-100] and [100].
    #Brightness can be adjusted by using a control knob on the front of the monitor.

- **Contrast**
  - This item controls contrast ratio between [-100] and [100].
    #Contrast ratio can be adjusted by using a control knob on the front of the monitor.

- **Chroma**
  - This item controls saturation between [-50] and [50].
    #Chroma can be adjusted by using a control knob on the front of the monitor.

- **Phase**
  - This item controls phase value (Hue) between [-180] and [180].
    #This function activates only with analog video input signal.

- **Aperture**
  - This item controls the picture sharpness between [0] and [24].
    #Sharpness can be adjusted by using a control knob on the front of the monitor.

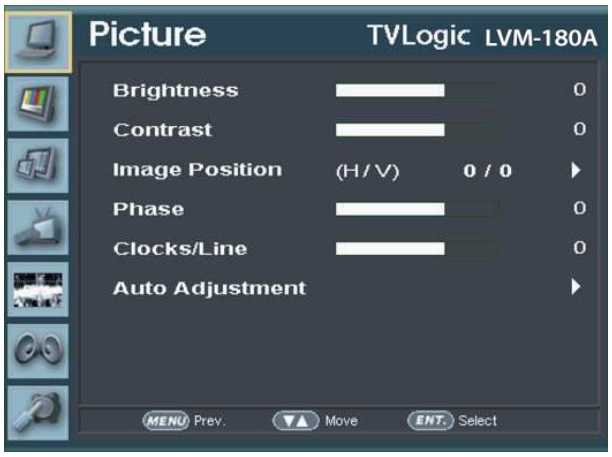
- **NTSC Setup**
  - This item sets NTSC IRE value for [0 IRE] (Zero setup) or [7.5 IRE].
  - It is activated only in COMPOSITE 1/2/3 or S-VIDEO mode when the NTSC signal is input.

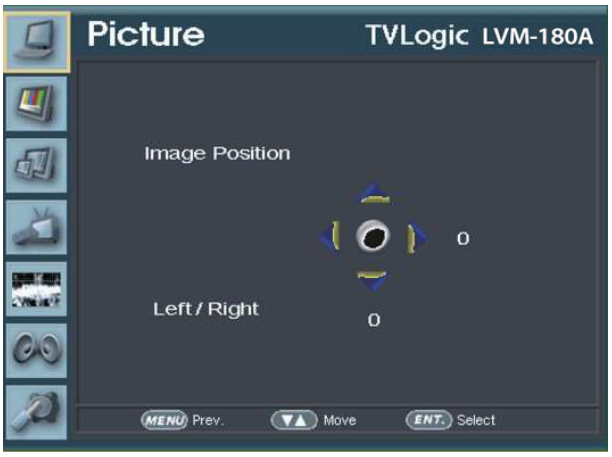
- **Key Lock**
  - This item locks all buttons except for power, source change and menu button in front of the monitor.

- **Output Mode Select**
  - Used to select the range of luminance between [Full] (255) and [Limited] (235).

05 MENU OPERATIONS

[1] PICTURE (DVI ANALOG)





- **Brightness**
  - This item controls the degree of brightness between [-100] and [100].
    #Brightness can be adjusted by using a control knob on the front of the monitor.

- **Contrast**
  - This item controls contrast ratio between [-100] and [100].
    #Contrast ratio can be adjusted by using a control knob on the front of the monitor.

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

- **Clocks/Line**
  - This item adjusts timing for signal sync.
    #If the signal sync is not set correctly, the image may display flickering and dropping.

- **Auto Adjustment**
  - This item adjusts the input signal automatically. Phase, Clocks/Line, and Image Position are also adjusted.

- If the image does not display correctly after the Auto Adjustment, select it again for correct adjustment.
  Auto Adjustment activates automatically when the input signal resolution changes.

- **Image Position**
  - This items moves the picture position for Up/Down/Left/Right.

05 MENU OPERATIONS

[2] COLOR



- **Color Temp.**
  - This menu controls color temperature and allows instant access to preset color temperature settings of [3200K], [5600K], [6500K], [9300K] and [USER 1/2/3].
    #Only in User1/2/3 mode, RGB Gain, Bias(=Offset) and Color copy are activated.

- **Gain Red/Green/Blue**
  - This menu controls Red/Green/Blue gain value between [-256] and [255].
    #Only in User1/2/3 mode, these functions are activated.

- **Bias Red/Green/Blue**
  - This menu controls Red/Green/Blue bias (Offset, Black Level) value between [-100] and [100].
    #Only in User1/2/3 mode, these functions are activated.

- **Color Copy**
  - This menu is used to copy the 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 in USER1/2/3 mode, this function is activated.

- **Gamma**
  - Used to set the Gamma value.
  - Settable values are [2.2] and [2.4]

05 MENU OPERATIONS

[3] MARKER

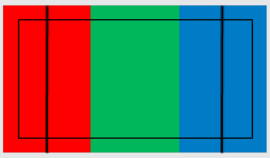


- **Marker**
  - This menu selects the marker type when the MARKER is displayed on the screen.
  - Marker may only be activated by pressing the MARKER button on the front of the monitor.
  - Available marker types are [OFF], [16:9], [4:3], [4:3 ON AIR], [15:9], [14:9], [13:9], [1.85:1], [2.35:1], [1.85:1 & 4:3] and [USER].

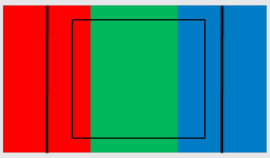
- **Center Marker**
  - This menu displays the CENTER MARKER on the screen.
  - The function operates only after activating the MARKER function by pressing the MARKER button on the front of the monitor.

- **Safety Area**
  - This menu 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 menu 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 acts as below:



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



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

- **Marker Mat**
  - This menu darkens the area of the outside of MARKER.
  - The degrees of darkness are between [Off] and [7].
  - The higher the degree is, the darker the outside of the Marker area is.

- **Marker Color**
  - This menu controls the color of the Marker lines.
  - Available colors are [White], [Gray], [Black], [Red], [Green] and [Blue].

- **Thickness**
  - This menu controls the thickness of the Marker lines.
  - The degrees of thickness are between [1] and [7].

05 MENU OPERATIONS

[3] MARKER



***USER MARKER H1/H2/V1/V2 activate when the [Marker] menu is set to [User] mode.**

- **USER Marker H1**
  - This menu controls the position of the first user defined horizontal marker line.
  - Adjustment range is [1] to [1920].

- **USER Marker H2**
  - This menu controls the position of the second user defined horizontal marker line.
  - Adjustment range is [1] to [1920].

- **USER Marker V1**
  - This menu controls the position of the first user defined vertical marker line.
  - Adjustment range is [1] to [1080].

- **USER Marker V2**
  - This menu controls the position of the second user defined vertical marker line.
  - Adjustment range is [1] to [1080].

05 MENU OPERATIONS

[4] GPI / UMD



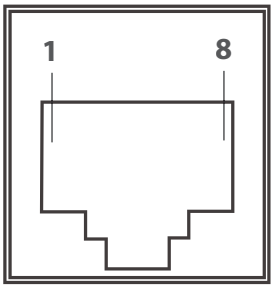
- **This product provides a REMOTE CONTROL mode.**
  The user may connect RJ-45 jack to the REMOTE terminal on the rear of the unit and designate a function for each pin.

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

- **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



PIN No.	Settable Values
PIN 1~6	NONE ANALOG CHANNEL DIGITAL CHANNEL SDI-A/B CHANNEL TALLY R TALLY G BLUE ONLY UNDER SCAN ASPECT H/V DELAY 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% SAFETY AREA 88% SAFETY AREA 90% SAFETY AREA 93% SAFETY AREA 100% D-UMD FOCUS ASSIST CC608(ANC) CC608(LINE21) CC708
PIN 7	POWER ON/OFF CONTROL
PIN 8	GROUND

05 MENU OPERATIONS

[4] GPI / UMD



- **Group ID**
  - This menu is used to group the monitors and control the monitors by group when you control the monitors with the protocol provided by TVLogic, using RS-422/485 communication or Network.
  - Available setting is [0] to [16].

- **Monitor ID**
  - This menu sets the ID of each monitor for the TVLogic control protocol or DYNAMIC UMD using RS-422/485 communication.
  - Available setting is [0] to [124].

- **RS422 baud rate**
  - The items sets the monitor control program that TVLogic provides and Baud rate.
  - Available setting is [9600], [19200], [38400], [57600], [115200].

- **UMD Display**
  - This menu sets UMD, ANC and DYNAMIC UMD.
  - UMD: Displays user customized characters on screen.
  - ANC: Displays characters embedded in SDI signal.
  - *D-UMD(TVL_S8C): Displays the tally signal and 8 letters that are input by TSL protocol (V3.1) on the screen.
  - *D-UMD(TVL_S16C): Displays the tally signal and 16 letters that are input by TSL protocol (V3.1) on the screen.
  - *D-UMD(TVL_D8C) : Displays a pair of tally signal and a pair of 8 letters that are input by TSL protocol (V3.1) on the screen.

- **UMD Character**
  - This menu is used to customize the characters for UMD.
  - Alphabets, numbers and special symbols are available.
  - Maximum of 8 characters.

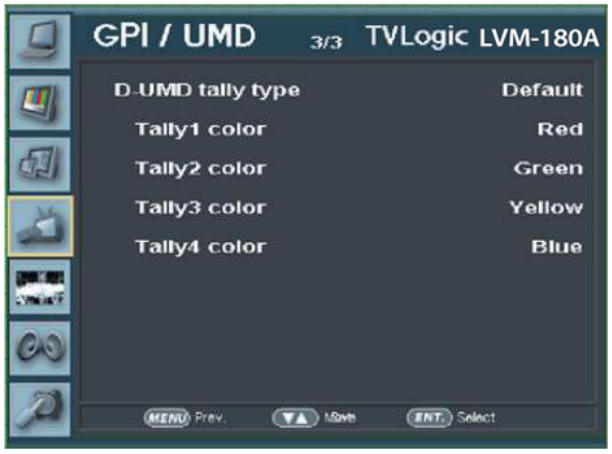
- **UMD character color**
  - This menu sets the color of the UMD letter.
  - Available mode is [Green], [Blue], [Yellow], [Cyan], [Magenta], [White], [Red].

- **UMD B.G. trans.**
  - This menu sets the transparency of UMD letter box.
  - The selectable modes are [Opaque], [50%], [85%] and [100%].

- **UMD size**
  - This menu sets the font size of UMD and the size of UMD letter box.
  - The selectable items are [Small] and [Large].

05 MENU OPERATIONS

[4] GPI / UMD



- **D-UMD tally type**
  - This menu sets the tally operation when D-UMD(TVL_D8C) is set in UMD DISPLAY.
  - The selectable values are [Default] and [User Color].
    * Default: Original TVLogic managing method (VRT)
    * User color: The user can set each tally color.
  - When User color is selected, Tally1 Color ~ Tally4 Color items are activated.
    * Character: Shows tally in the letter color. The operation is the same as [Default].
    * B.G. color: Show tally in the letter background color. The operation is the same as [Default].
    * User tally: This mode receives the signal fed as bit0 and bit1 of TSL Protocol control byte, adjusts the color the user wants, and then shows the tally. Available modes are Off, White, Red, Green, Blue, Yellow, Cyan, Magenta.
    * User character: Shows tally in letter color. The method is the same as User tally.
    * User B.G.: Show tally in letter background color. The method is the same as User tally.

- **Tally1 Color ~ Tally4 Color**
  - This menu sets the color of Tally1, Tally2, Tally3, Tally4 respectively.
  - The selectable colors are Red, Green, Yellow.

- **B0:0 B1:0 ~ B0:1 B0:1**
  - This menu sets the color of the input condition for byte0, byte1 in TSL Protocol Control Byte.
  - The selectable colors are Off, White, Red, Green, Blue, Yellow, Cyan, Magenta.

05 MENU OPERATIONS

[4] GPI / UMD

<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.



05 MENU OPERATIONS

[4] GPI / UMD

• Tally Type - Default

- TVL_S8C(Single 8 Characters) & TVL_S16C(Single 16 Characters)

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

- TVL_D8C(Dual 8 Characters)

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

• D-UMD Tally Type - 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



05 MENU OPERATIONS

[5] WAVEFORM



- **Waveform type**
  - This menu sets Waveform and VectorScope.
  - Operation order: [Off], [Waveform], [VectorScope], [Waveform Wide], [Waveform YCbCr], [Wave_Vector], [FULL Waveform(Y)], [FULL VectorScope].

  * Waveform: Displays the shape and form of luminance level of a signal.
  * VectorScope: Displays color components of the input signals. It is divided into 2 types depending on HD input and SD input. 100% scope and 75% scope are shown in a graph.
  * Waveform Wide: Displays the stretched luminance components of the input signal to fit width of the screen on the bottom of the monitor.
  * Waveform YCbCr: Displays the Cb, Cr components of the input signal into waveform.
  * Wave_Vector: Displays Waveform(Y) and VectorScope at the same time.
  * FULL Waveform: Displays Waveform(Y) in a whole screen.
  * FULL VectorScope: Displays VectorScope in a whole screen.

- **Waveform Intensity**
  - The 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.**
  - The 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**
  - The item controls the size of WAVEFORM/VECTOR.
  - Available modes are [Small], [Large], [Full].

- **Line Waveform**
  - Selects if the monitor shows the whole data from the picture or the data from a certain line of the picture when WAVEFORM/VECTOR functions.

05 MENU OPERATIONS

[5] WAVEFORM



• Select Line Position

- The menu is used to select and check a certain horizontal line in Waveform and VectorScope.
- It is activated with [Line Waveform] item on.
- If you want to adjust a desired horizontal line, you can select [Waveform], [VectorScope] or other modes in [Waveform type] menu and then select a certain vertical line using the UP/DOWN knob.
- The range of SDI signal may change depending on input resolution as follows.
  *PAL: Min. 17, Max. 522
  *NTSC: Min. 23, Max. 623
  *720p: Min. 26, Max. 750
  *1080i: Min. 21, Max. 1123
  *1080p: Min. 42, Max. 1121
- The range of HDMI/Analog signal may change depending on the output resolution as follows.
  *Min. 0, Max. 1080

• Luma(Y') Zone Check

- Analyzes Luma (Y') of input signal and displays the analyzed area on the screen.
- Available modes are [Color Patt. On] and [Zebra Patt. On].
- After each pixel's Y' level is analyzed, it is displayed as 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 pixel is displayed as green color or green diagonal lines, and over 100%(235) as red color or red diagonal lines.
- When the Y' level of a pixel is between 0~100%, the pixel is displayed as Gray level, except for selected Luma Zone.
- In the [Color Pattern] mode, the zone the user adjusted is displayed as Yellow (10% lower zone), Pink (±2.5%), Cyan (10% upper zone).

• Luma(Y') Zone Adjust

- This function is used to set he Y' level to be colored Yellow,
  Pink and Cyan in [Color Patt. On] mode, or to set Y' level zone to be displayed with diagonal lines in [Zebra Patt.
  On] mode simply by scrolling with the Knob.
- Available setting is [0%] to [100%].

05 MENU OPERATIONS

[5] WAVEFORM



- **Range Error**
  - This function is 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 which are set in [Y Max], [Y Min], [C Max], [C Min] menu are indicated in Waveform set in [Waveform type] menu.
  - If [Y Picture Blink] and [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.
  *Range Error function doesn't support the RGB signals.
  *See section "8. Other Functions [8] Range Error" for more information.

- **Y Max**
  - Sets the maximum value of Luma (Y') level between [0] and [255]
  - Pixels whose value exceed the maximum Y' level blink in the screen and are displayed in red on the Waveform.

- **Y Min**
  - Sets the minimum value of Luma (Y') level between [0] and [255]
  - Pixels whose value are below the minimum Y' level blink in the screen and are displayed in red on the Waveform.

- **C Max**
  - Sets the maximum value of Chroma (C') level between [0] and [255].
  - Pixels whose value exceed the maximum C' level blink in the screen and are displayed in red on the Waveform.

- **C Min**
  - Sets the minimum value of Chroma (C') level between [0] and [255].
  - Pixels whose value are below the minimum C' level blink in the screen and are displayed in red on the Waveform.

- **Y Picture Blink**
  - If this menu is set [On], the part of the picture blinks when the Luma component of the input video is out of the setting value at [Y Man] and [Y Min].

- **C Picture Blink**
  - If this menu is set [On], the part of the picture blinks when the color component of the input video is out of the setting value at [C Max] and [C Min].

05 MENU OPERATIONS

[6] AUDIO



- **Volume**
  - This menu adjusts the embedded audio output volume for the internal speakers and [AUDIO OUT] in the front of the monitor.
  - Available values are between [0] and [30].

- **Em. Audio Left/Right**
  - This menu adjusts the embedded audio channel for the left and right audio out of internal speakers and [AUDIO OUT] in the front of the monitor.
  - Available values are [Off], [CH1] to [CH16], [Ext. Audio] with SDI input, and Left: [CH1], Right: [CH2] with HDMI input.

- **Level Meter**
  - Used to adjust the audio level meter.
  - Available modes are [OFF], [16CH(Hor.)], [16CH(Ver.)], [8CH], [8CH Side], [4CH] and [4CH Side] with SDI input, and [OFF], [2CH(Hor.)], [2CH(Ver.)] with HDMI input.
    *16CH(Hor.): 8 channels are displayed on the top-left of the screen and the other 8 channels on the top-right horizontally.
    *16CH(Ver.): 8 channels are displayed on the top-left of the screen and the other 8 channels on the top-right vertically.
    *8CH: 4 channels are displayed on the top-left of the screen and the other 4 channels on the top-right horizontally.
    *8CH Side: 8 channels are displayed on the top-right horizontally.
    *4CH: 2 channels are displayed on the top-left of the screen and the other 2 channels on the top-right horizontally.
    *4CH Side: 4 channels are displayed on the top-right horizontally.

- Level Meter Group
  - In [8CH], [8CH Side], [4CH], [4CH Side] of [Level Meter] mode, the Level Meter Group can be adjusted.
  - Available modes are as follows.
    *8CH, 8CH Side: [G1+G2]-[G2+G3]-[G3+G4]-[G1+G3]-[G1+G4]-[G2+G4]
    *4CH, 4CH Side: [G1]-[G2]-[G3]-[G4]

- Level Meter Display (SDI Only)
  - This menu adjusts the display method of audio level meter.
  - Available modes are [Pair] and [Group].

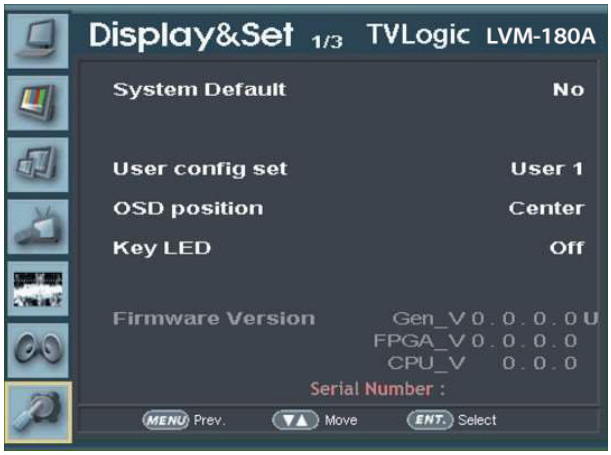
- Level Meter Reference
  - This menu sets the Audio Level Meter default.
  - Available values are [-18dB] and [-20dB].
  - The audio within the selected value is displayed in green on the Audio Level Meter. The audio which exceeds the selected value is displayed in yellow on the Audio Level Meter.
  - The Audio exceeding -4dB is displayed in red on the Audio Level Meter.

- Level Meter Size
  - This menu adjusts the size of the audio level meter.
  - Available modes are [Small] and [Large].

- Peak Decay Time
  - This function sets the decrease time of the maximum indication of the audio signals.
  - Available value is [0] to [100]. The higher the value is set, the longer time it takes for the indication bars to decay.

05 MENU OPERATIONS

[7] DISPLAY & SET



- **System Default**
  - The user can use this function to initialize the values of BRIGHT, CONTRAST, CHROMA, PHASE and APERTURE of the monitor.

- **Eco Saving**
  - This function is used to decrease the brightness of the screen automatically to reduce the power consumption when there is no signal.
  - When the monitor receives the signal, the brightness of the screen maintains the adjusted level.

- **User config set**
  - This function saves 3 User configurations.
  - Available mode is [User1], [User2], [User3].
  - Marker, Center Marker, Safety Area, Marker Mat, Marker Color in [Marker] menu and Brightness, Contrast, Chroma, Phase, Aperture in [Picture] are saved.

- **OSD position**
  - This menu sets the position of the OSD menu.
  - Available setting is [Center], [Right Top], [Right Bottom], [Left Bottom], [Left Top].

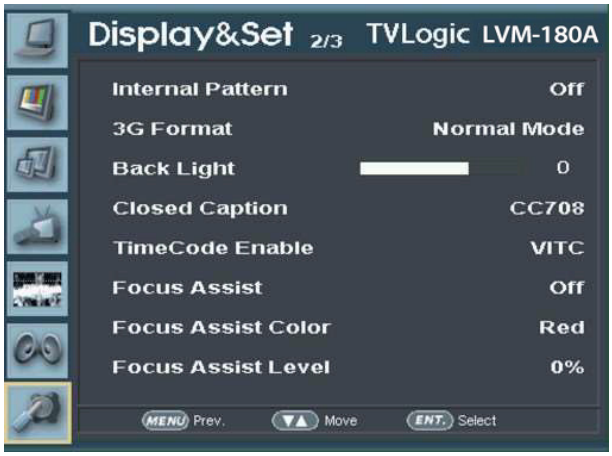
- Key LED
  - This function turns on and off the LED in front of the monitor.
  - Even though you turn off Key LED, when you press LED button in front of the monitor, the LED is on and after 5 seconds the LED is off.

- Firmware Version
  - This item shows the current firmware version.

- Serial Number
  - This item shows the serial number.

05 MENU OPERATIONS

[7] DISPLAY & SET



- **Internal Pattern**
  - This function displays the internal Gray pattern or the Color Bar+Pluge pattern.
  - Gray pattern range is [0%] to [100%] with 5% increment.

- **3G Format**
  - You can select 3G FORMAT among [Normal Mode], [A 444 10BIT_YCbCr], [A 444 10BIT_RGB], [A 444 12BIT_YCbCr], [A 444 12BIT_RGB], [A 422 12BIT_YCbCr], [B 444 10/12BIT_YCbCr], [B 444 10/12BIT_RGB], [B 422 12BIT_YCbCr], [B 422 10BIT_YCbCr 60P].
  - It detects the signal automatically in [Normal Mode], when the Payload is embedded in the input signal.

- **Back Light**
  - This menu shows the current backlight value.
  - When you execute [System Default], the Backlight value returns to the original factory value.
  - Available range is [0] to [100].

- **Closed Caption**
  - This menu adjusts the closed caption.
  - Available modes are [OFF], [CC708], [CC608(LINE21)], [CC608(ANC)].

  *The closed captions which meet [608: CEA-608-B] and [708: CEA-708-C] standard are only displayed on the screen.

- **TimeCode Enable**
  - This menu sets the timecode display.
  - Available modes are [OFF], [VITC], [LTC].

- **Focus Assist**
  - This function makes you check which point your camera's focus is on easily by showing a color on the focused area.
  - Available value changes in order of [Mono On], [Color On] and [Off].

  *[Mono On]: Shows the edge of focused area in a designated color and the other area in black & white applying Luma (Y').

  *[Color On]: Shows the edge of only focused area in a designated color.

- **Focus Assist Color**
  - This menu adjusts the color of Focus Assist.
  - Available values are [Red], [Green], [Blue], [White].

- **Focus Assist Level**
  - This menu adjusts the focus assist level.
  - Available range is [0%] to [100%]. Larger value means greater detail detection.
  - Focus assist color is presented when the difference between the border selections exceeds the selected value.
  - The feature is only available when [Focus Assist] mode is selected. [Focus Assist] mode can be selected by pressing [BLUE ONLY] button as well as by adjusting in OSD menu.

05 MENU OPERATIONS

[7] DISPLAY & SET



- **S/W upgrade**
  - This menu is used to update the firmware using the USB memory stick(Thumb drive).
  - For more detailed information, refer to "6. Firmware Upgrade" in the page 29.

- **S/W upgrade start**
  - When [S/W upgrade] is [On], if the monitor detects the USB memory stick which contains the available firmware files for update, this menu becomes activated.

06 FIRMWARE UPGRADE

[1] SOFTWARE UPGRADE



- **USB memory stick(Thumb drive) that contains the firmware files is necessary.**

- **Select [Display&Set] menu**
  - Connect the USB memory stick to the USB slot in front of the monitor.
  - Set [S/W upgrade] to [On].



- If USB memory stick is connected correctly, [S/W upgrade start] is activated.

* if the item is not activated, please disconnect and connect the USB memory stick again. After 5 sec. do the same procedure.



- The monitor searchs USB memory stick.



- Select [Yes] in [S/W upgrade start] and proceed the firmware update.

* During the update, the monitor screen is off, and nothing functions.
* After the update, TVLogic logo shows up on the screen, and the monitor initializes.
* Update can take 10 to 20min. depending on firmware kind.

07 BUTTON FUNCTIONS

[1] ANALOG

- **LVM-180A monitor supports various analog input signals.**

1. Press [ANALOG] in front of the monitor and the OSD menu appears as the picture below. Select the input you would like to use by the UP/DOWN knob and press the knob.

2. The information of the current input signal appears on the bottom of OSD.

3. Press [ANALOG] again, then OSD menu disappears.

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

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



[2] DIGITAL INPUT

- **LVM-180A monitor supports HDMI/DVI digital input signal.**

1. Press [DIGITAL] in front of the monitor and the OSD menu appears as the picture below. Select input you would like to use by the UP/DOWN knob and press the knob.

2. The information of the current input signal appears on the bottom of OSD.

3. Press [DIGITAL] again, then the OSD menu disappears.

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



07 BUTTON FUNCTIONS

[3] SDI INPUT

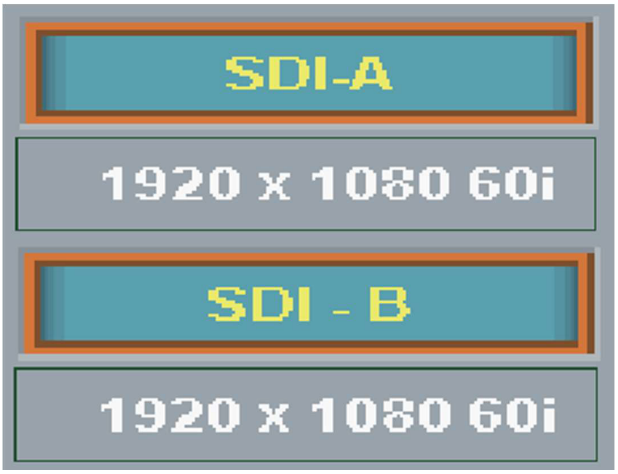
- **LVM-180A monitor supports the two HD/SD/ 3G-SDI inputs.**

1. Press [SDI-A] or [SDI-B] in front of the monitor.

2. The information of the current input signal appears on the bottom of OSD.

3. Press [SDI-A] or [SDI-B] again, then OSD menu disappears.

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



[4] FUNCTION KEY SET

- **The Function Keys allow the user to activate the desired functions quickly.**

1. Hold [F1] to [F5] key in front of the monitor for more than 2 seconds and the OSD menu appears as the picture below.

2. Select input you would like to use by the UP/DOWN knob.

3. Afterward, [F1] to [F5] keys perform the designated functions.



08 OTHER FUNCTIONS

[1] SCAN

- **The function can select the various scan mode.**

- **Press [SCAN] in front of the monitor and the Scan mode changes.**

1. Press [SCAN] button, and the Scan mode changes in order of [Zero Scan], [Over Scan], [User Aspect].

2. The change order of the scan mode may differ depending on the input signal type.

   - Zero Scan: Zooms in/out of the image without changing the aspect ratio.

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

   - User Aspect: Selects [Width] and [Height] in [User Aspect] OSD and sets the aspect ratio by using the UP/DOWN knob.

08 OTHER FUNCTIONS

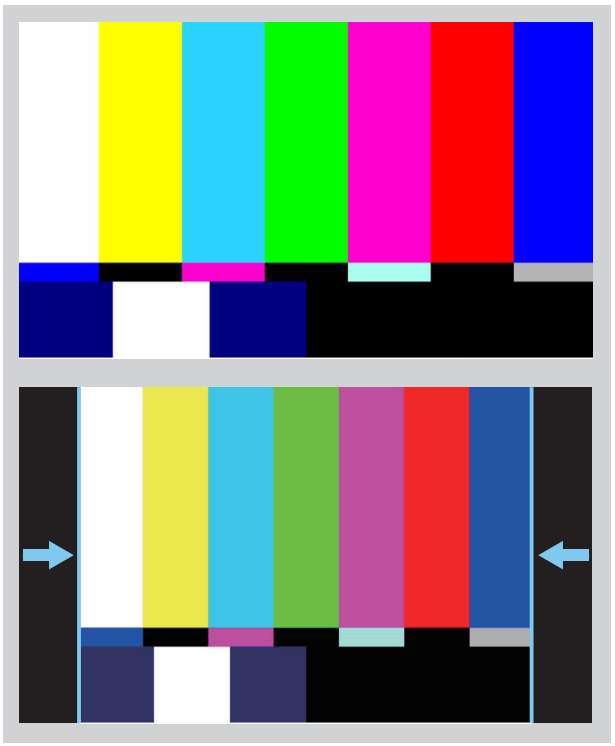
[2] USER ASPECT



- **Select [Aspect] mode in the OSD menu to activate the [User Aspect] mode.**

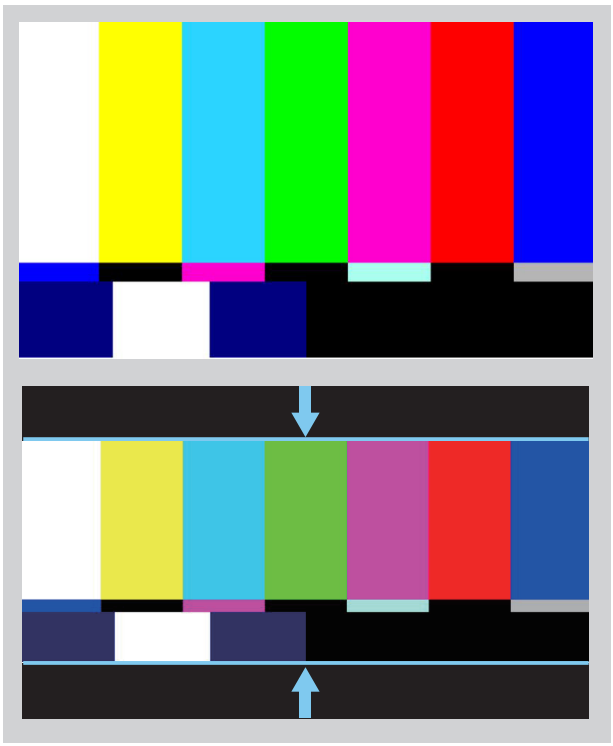
- **After activation, press the Knob to get ready for controlling.**





- Adjust the ratio using the Knob.
- Control range for width: Min[100] ~ Max[1920]
- Control range for height: Min[100] ~ Max[1080]
- The size-adjusted picture always stay in the center of the screen.



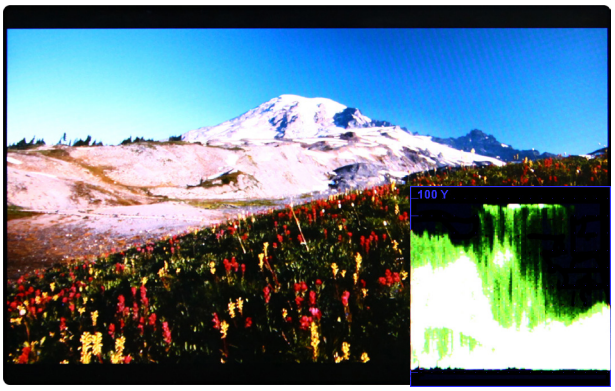


- To adjust the 16:9 aspect ratio of 1920x1080 resolution into 2.35:1 aspect ratio, adjust the width and height as 1920x817.

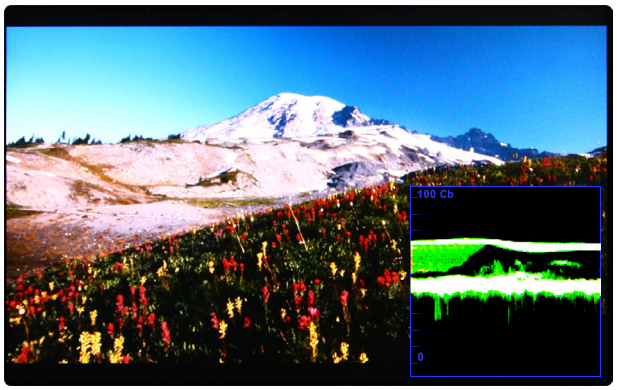
08 OTHER FUNCTIONS

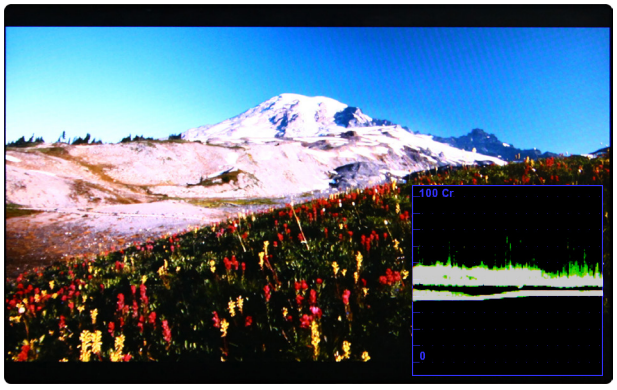
[3] WAVEFORM / VECTORSCOPE

- **Waveform / Vector**
  - This function sets the Waveform and Vectorscope.
  - Activates in order of Off, Waveform, VectorScope, Waveform Wide, Waveform YCbCr, Wave_Vector, FULL Waveform(Y), FULL VectorScope.
- **Waveform Y**
  - Displays the Luma(Y') component of the input signal into waveform.

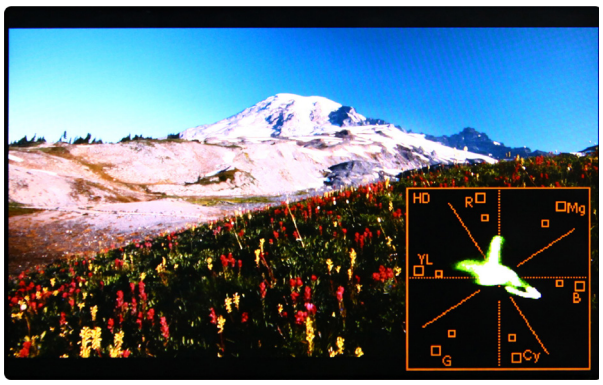


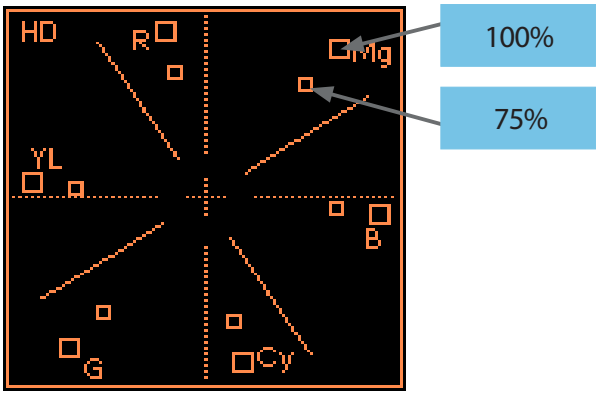
- **Waveform Cb, Cr**
  - Displays the Cb, Cr components of the input signal into waveform.





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





*Wave_Vector: Displays the Waveform(Y') and the Vectorscope simultaneously

*Vector_YCbCr: Displays the Vectorscope and the Waveform(Y,Cb,Cr) simultaneously.

*Full waveform(Y): Displays the Waveform(Y) to full screen.

*Full VectorScope: Displays the Vectorscope to full screen.

08 OTHER FUNCTIONS

[4] SELECT LINE POSITION (Waveform / VectorScope) / [5] ZOOM

- **Used to select a specific horizontal line for WAVEFORM and VECTOR SCOPE.**

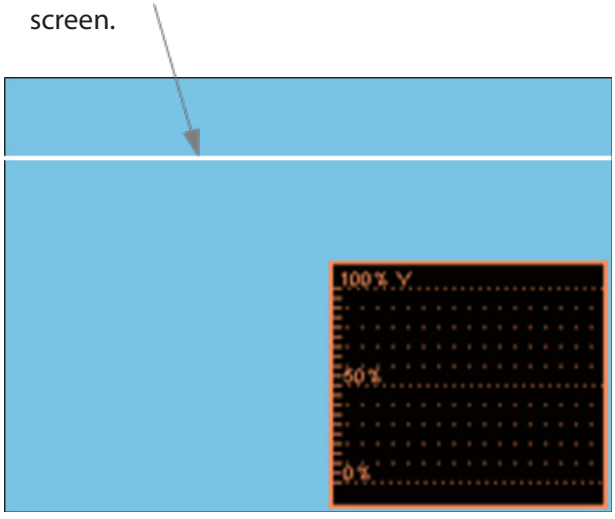
- This function works when the [Line Waveform] is activated.

- To activate this function, go to [Waveform] > [Waveform type] and select [Waveform] or [VectorScope] or other modes. And then, set [Line Waveform] On and adjust the horizontal line in [Select Line Position] using the Knob button.

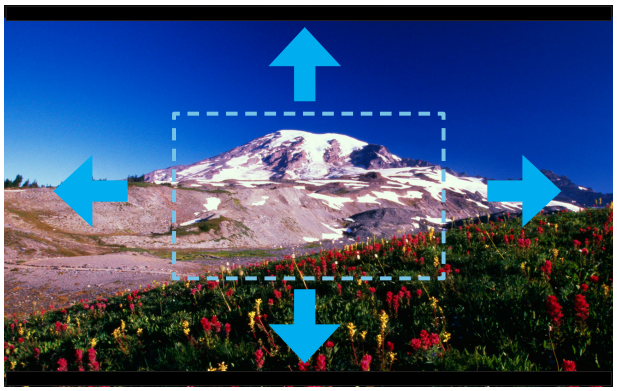
- Adjustment range varies according to the resolution of the input SDI signal.
  *PAL : Min 17, Max 522
  *NTSC : Min 23, Max 623
  *720p : Min 26, Max 750
  *1080i : Min 21, Max 1123
  *1080p : Min 42, Max 1121

- Adjustment range for HDMI and Analog signal varies according to the output resolution of the signal.
  *Min 0, Max 1080

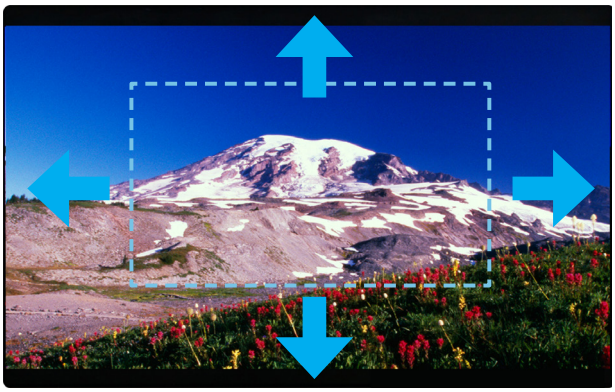
- The selected line is indicated in White on the screen.



- **Used to magnify the input signal from 0% to 90%.**
- **Supports Zoom Width Scroll / Zoom Height Scroll function.**
- **Zooms IN/OUT focused on the scrolled area.**



<ZOOM OFF>



<ZOOM 50%>



<ZOOM 75%>

08 OTHER FUNCTIONS

[6] LUMA(Y") ZONE CHECK

• COLOR PATTERN TYPE

- Displays the pixels with the designated Luma(Y') levels of the input image in colors. Pixels whose Y' level is over 100% are displayed as Red. Pixels whose Y' level is below 0% are displayed as Green.

- Pixels with Y' levels which are designated by the user are displayed in following colors - yellow, pink, cyan.

- Factory Default Y' (Border line between pink and yellow) level is 70%. The upper 2.5% and lower 2.5% zone from the Y' level set in [LUMA(Y') ZONE ADJUST] menu is displayed in Pink. The upper 10% zone from the Pink zone is displayed in Yellow, and the lower 10% zone from the Pink zone is displayed in Cyan. So, 25% zone is displayed in colors and the other 75% zone is displayed mono and white.

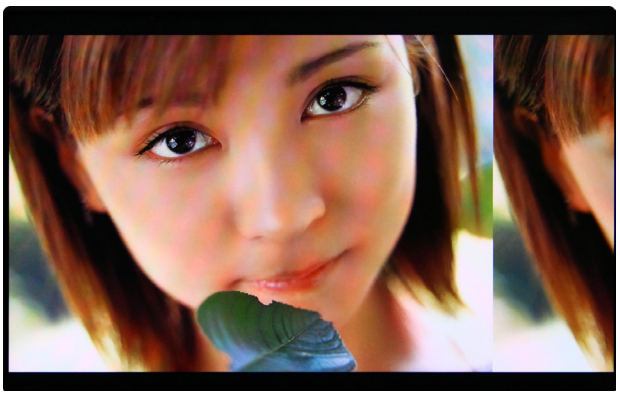
• ZEBRA PATTERN TYPE

- Displays the pixels with the designated Luma(Y') levels of the input image in zebra pattern. Pixels whose Y' level is over 100% are displayed as red diagonal stripes.
  Pixels whose Y' level is below 0% are displayed as green diagonal stripes.

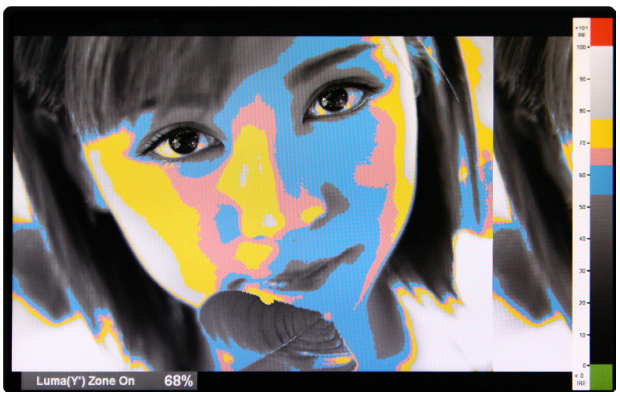
- Pixels with Y' levels which are designated by the user are displayed as black diagonal stripes.

- Factory Default Y' level is 70%. The pixels with Y' level from 65% to 75% are displayed as black zebra pattern. So, totally 10% zone is displayed as black diagonal stripes.

• LUMA(Y') ZONE CHECK function is convenient to set the exposure or the lighting so that the skin tone or the specific color tone is correctly shot.



<Luma Zone Check OFF>



<Luma Zone Check ON_Color Pattern Type>



<Luma Zone Check ON_Zebra Pattern Type>

08 OTHER FUNCTIONS

[7] FOCUS ASSIST

- **Focus Assist function assigns a color to the pixels in the shape or the boundary of the image to inform the user to achive the best focus.**

  - With this function, user can easily differenciate the focused area from the out-focused area especially when shooting with a shallow depth of field.
  - Available types are [Color On] and [Mono On].
    * [Color On] : Background image is original color type.
    * [Mono On] : Background image is mono type.



<FOCUS ASSIST - COLOR ON>

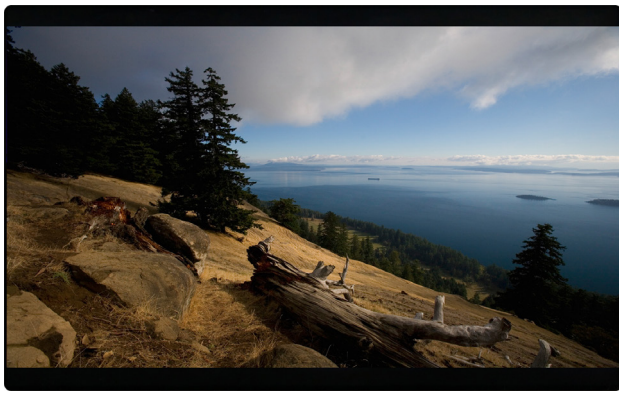


<FOCUS ASSIST - MONO ON>

[8] RANGE ERROR

- **Pixels with Y' or C' levels exceeding the designated levels adjusted in Y MAX, Y MIN, C MAX and C MIN menu shall blink.**

  - After the input signal's Luma(Y') and chroma information(C') are analyzed, if the input signal exceeds the designated maximum value or it is below the minimum value, the pixels shall blink. This function is to help the user to easily find out any unwanted levels of signals and set a better exposure.



<RANGE ERROR - OFF>

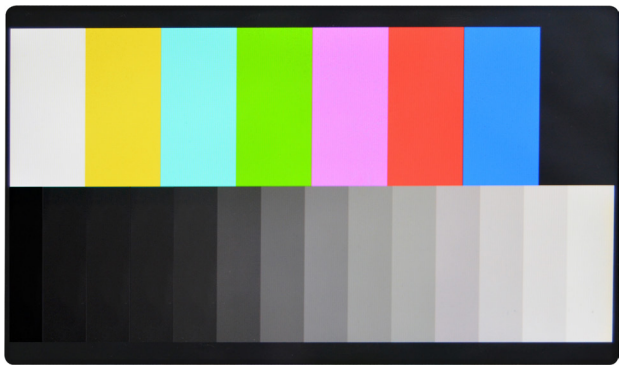


<RANGE ERROR - ON>

08 OTHER FUNCTIONS

[9] INTERNAL PATTERN

- **Displays the internally generated test patterns**
  - The internal test pattern consists of ColorBar+Pluge and Gray. The full screen of various gray levels(0~100%) are also embedded.



<Color Bar + Pluge Pattern>



<Gray Pattern>

[10] INPO.

- **Displays the current status and function setting of the monitor.**
- **It displays when you press [INFO.] button in front of the monitor.**

[Format]: Current input signal

[Color Temp]: Current color temperature

[F1][F2][F3][F4][F5]: Current hot-key setting status

[Scan]: Current scan setting status

[Aspect]: Current aspect ratio setting status

[Waveform]

[A.L.M]

[User config]

[Time code]

[Focus Assist]

[Captions]

[UMD Display]

[Key LED]

[Remote ctrl]

[Fan enable]

System information

Format	:	SDI-A 1920 x 1080 60i			
Color Temp	:	5600K	[F1]	:	Zoom
[F2]	:	Freeze	[F3]	:	Closed Caption
[F4]	:	Waveform	[F5]	:	UMD Display
Scan	:	Zero Scan	Aspect	:	16:9
Waveform	:	Vector_YCbCr	A.L.M	:	16CH(Ver.)
User config	:	User 1	Time Code	:	VITC
Focus Assist	:	Off	Captions	:	CC708
UMD Display	:	Off	Key LED	:	On
Remote ctrl	:	Wireless	Fan enable	:	On

09 VIDEO SUPPORT RESOLUTION

[1] SDI MODE

Input Signal Interface	Signal Format (SD SDI)	
SD-SDI	720x487(59.94i) 720x576(50i)	YCbCr 4:2:2 10bit

Input Signal Interface	Signal Format (SD SDI)	
HD-SDI	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

Input Signal Interface	Signal Format (SD SDI)	
3G-SDI (A/B)	1920x1080(60p/59.94p/50p) Y	CbCr 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

[2] 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

09 VIDEO SUPPORT RESOLUTION

[3] DVI-DIGITAL/HDMI 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

[4] DVI-DIGITAL/HDMI VIDEO MODE

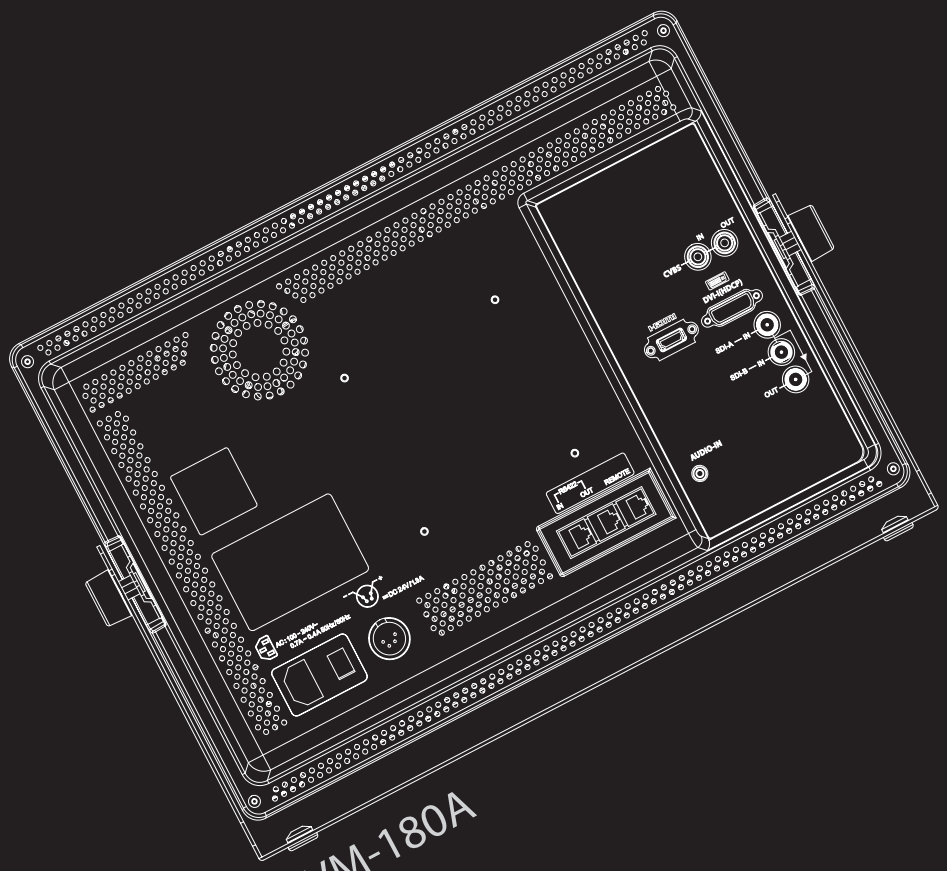
Resolution	Frequency
SMPTE-274M	1080i (60 / 59.94)
SMPTE-296M	720i (60 / 59.94)
SMPTE-125M	480i (59.94), 480p (59.94)

- **There are GRAPHIC mode and VIDEO mode in DVI DIGITAL mode.**
- **If the SCAN mode is not set to ZERO SCAN in DVI-ANALOG, DVI-DIGITAL GRAPHIC, DVI-GRAPHIC VIDEO, HDMI mode, the image may not be properly displayed.**
- **When the displayed image is the Aspect mode, if you press the ASPECT key on the remote control, the image will be displayed in the wide mode.**

10 PRODUCT SPECIFICATIONS

LVM-180A		
LCD	Size	18.5"
	Resolution	1920 x 1080 (16:9)
	Pixel Pitch	213(per one triad) x 213 [um]
	Support Color	16.7M colors (True 8 Bit)
	Luminance of white	500cd/m2 (Typical)
	Contrast Ratio	1000:1 (Typical)
	Active Area	408.96(H) x 230.04 (V) [mm]
Input Connector	2 x BNC	SDI Channel Input
	1 x BNC	CVBS Input
	1 x HDMI	HDMI Input
	1 x DVI-I	DVI Input
Output	1 x BNC	SDI Channel (Active Through Out)
	1 x BNC	CVBS Output
Input Signal	3G-SDI	2.970Gbps
	HD-SDI	1.485Gbps
	SD-SDI	270 Mbps
	Analog	Composite
	DVI	VESA/IBM Modes
	HDMI	480i / 480p / 720p / 1080i VESA/IBM Modes
Analog Input Spec	Composite	1.0Vpp (with Sync)
SDI Input Signal Formats	SMPTE-425M-A/B	1080p(60/59.94/50/30/29.97/25/24/23.98/30sF/29.97sF/25sF/24sF/23.98sF) 1080i(60/59.94/50)
	SMPTE-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)
Audio	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.)		30 Watts
Operating Temperature		0℃ to 40℃ (32℉ to 104℉)
Storage Temperature		-20℃ to 60℃ (-4℉ to 140℉)
Dimensions	Main Body (mm/inch)	442.5 x 309.2 x 65.4 (mm) / 17.42 x 12.17 x 2.57 (inch)
	Main Body with stand (mm/inch)	483.5 x 332.9 x 137.5 (mm) / 19.03 x 13.1 x 5.41 (inch)
Weight		5.6 kg / 12.34 lbs
Accessory	Basic	AC Power Cord, Stand
	Optional	Sun Hood, Acrylic Filter, Rack Mount Kit, Carrying Case, V-Mount, G-Mount

*The specifications above may be changed without notice.



LVM-180A

TVlogic® Always ON-AIR

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