*v*MON-185-3G
*v*MON-240-3G2

3G/HD/SD-SDI, HDMI Video Monitors

User Guide

Part Number 821860, Revision A

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Introduction

Overview

The vMON-185-3G and vMON-240-3G2 are a full-featured slim, free standing video monitors ideal for mobile trucks, news and transmission control rooms, production/post-production and video surveillance applications. These monitors come standard with in-monitor level metering, selectable video vectorscope/histogram, safe area and aspect ratio markers, IMD labeling, tally, and built-in color bars, as well as a variety of picture controls and productive video features such as zoom controls and focus assist.

The vMON-185-3G is an 18.5" HDR monitor and the vMON-240-3G2 is a 24" 3G monitor. Both monitors are equipped with 2x3G/HD/SD-SDI and 1xYPbPr/Video/Y/C, 1xDVI-I, and 1xHDMI Inputs and 2x3G/HD/SD-SDI and 1xYPbPr/Video/Y/C outputs. They support a variety of professional broadcasting features such as Waveform, Vectors, Pixel Measurement, and Darkness Check, making them brilliant monitors in a 2K production workflow.

All standard frame rates and resolutions are supported from 3G-SDI, HDMI, and composite input sources, and each SDI and composite input has a looping output. Up to 16 audio channels may be selected for visual monitoring using on-screen bar graph style level meters. Monitoring speakers on the front panel allow the selected screen to be audibly monitored, while a 3.5mm headphone jack provides optional private monitoring.

Safety

Instructions

1. Read, keep, and follow all of these instructions; heed all warnings.
2. Do not use this equipment near water.
3. Use only a dry cloth to clean the equipment.
4. Do not block any ventilation openings.
5. Do not install near any heat source such as a radiator, heat register, amplifier, or stove.
6. Do not attempt to plug the unit into a two-blade outlet (with only two prongs of equal width).

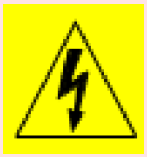
Important:

By design, the supplied AC mains power cord will only plug into a three-prong grounded outlet for your safety. If the plug does not fit into the outlet, contact an electrician to replace the obsolete outlet.

7. Protect the power cord from being walked on or pinched, particularly at plug connection on the equipment and at the socket.
8. Use only the attachments/accessories specified by the manufacturer.
9. Unplug the equipment during lightning storms or when unused for long periods of time.
10. Refer all servicing to qualified service personnel. Servicing will be required under all of the following conditions:
    a. The equipment has been damaged in any way, such as when the power-supply cord or plug is damaged.
    b. Liquid had been spilled or objects have fallen onto the equipment.
    c. The equipment has been exposed to rain or moisture.
    d. The equipment does not operate normally.
    e. The equipment has been dropped.

Safety Symbols

WARNING:



The symbol to the left warns of electric shock hazard inside the unit. Disconnect the power cord before removing access panels when installing upgrades. Only qualified service personnel are to operate the equipment with covers removed, and are to exercise caution to avoid personal injury.

Screen Maintenance

Please follow the guidelines below carefully to prevent discoloration, stains, and scratches on the screen:

- Avoid striking the screen with any object.
- Do not wipe the screen hard.
- Do not wipe the screen with solvents such as alcohol, thinner, or gasoline.
- Do not spray detergent or other cleaners on the monitor or LCD panel, as it may cause a fault because of water droplets entering the monitor.
- Do not write on the screen.
- Do not paste or stick any viscous markers on the screen.

The screen may be cleaned by gentle wiping with lint free cloth to remove dust. For the more thorough cleaning, use lint free cloth that has been very lightly dampened with detergent, and then dry any excess moisture from the monitor or LCD panel immediately to prevent damage.

LCD Display Care & Safety

Be gentle with the LCD screen. Do not let hard objects strike it or touch it.

- If the display screen should crack or break, causing the internal organic substance to leak out, do not inhale it or let it touch any part of your body.

- If the internal organic substance should touch your skin or clothing, immediately wash it off using soap and plenty of water.

LCD Display Cleaning

Do not use the following to clean the display screen. They may damage the polarizer.

- Water
- Ketone solvents (Ketone or acetone)
- Aromatic solvents (toluene or xylene)
- Ethyl alcohol
- Your breath

Wipe the screen with a very soft cloth or use Scotch 810 Magic Tape to adhere to the soiled surface of the LCD screen and then carefully peel it off along with the soil.

Mounting

Each unit is designed for a standard 19" rack. Install it at ear/eye level for best high frequency response and visual observation of the display screens. Please adhere to the following clearances:

Table 1-1: Clearance Recommendations

Clearance	Surface
24″	Front
3″	Rear
2″	Sides
1.75″	Top and Bottom (if either radiates heat)
0″	Top and Bottom (if no heat)

Heat Dissipation

The ambient temperature inside the mounting enclosure should not exceed 40° Celsius (104° Fahrenheit).

Important

Heat generated by the power supplies and other components is vented by fans in the back of the unit. Therefore, as a safety precaution, you must allow proper ventilation on this surface.

Sympathetic Vibration

Sympathetic vibration from other equipment (cables, etc.) in the rack may be serious enough to interfere with the unit's sound quality. If you experience sympathetic vibrations, use thin card stock, felt, foam, or weather-stripping

between the vibrating surfaces. Tie loose cables securely with cable ties.

Electrical Interference

Be careful to avoid mismatched cable types and other similar causes of undesired reflections in digital signal systems. If severe enough, such reflections can result in corruption of the digital data stream. As with any audio equipment, maximum immunity from electrical interference requires the use of shielded cable. The internal circuitry ground is connected to the chassis.

Power

The vMON-185-3G and vMON-240-3G2 monitors connect to an AC mains power source (100 to 240 VAC, 36W, 50/60Hz) using an IEC power cord. It may alternatively be powered via a 4-pin XLR connection by a 12V 3A battery (not supplied) or to 12V 3A power supply (not supplied) which connects to the AC mains power source (100 to 240 VAC, 36W, 50/60Hz) using an IEC power cord.

When the mains plug or appliance coupler is used as the disconnect device, the disconnect device should remain operable.

Compliance

FCC

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

ICES-003

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

CHAPTER 2: Local Operation

Operation

The vMON-185-3G and vMON-240-3G2 monitors can be operated easily and simply from controls on their front panels, as described in this chapter.

Front Panel

The front panels of the two models are shown in Figures 2-1 and 2-2.

Figure 2–1: *v*MON-240-3G2 Front Panel

Figure 2–2: *v*MON-185-3G Front Panel

1. **Power:** The **Power** indicator will be red when it is connected to power but the monitor is turned off. Pressing the **Power** button will turn on the monitor and this indicator will be lit blue. Pressing the **Power** button for 2 seconds will turn off the screen and return the indicator to red.
2. **LCD Screen**: The vMON-240-3G2 is equipped with a 24" high resolution (1920H x 1080V) LCD screen with high contrast (1000:1) and luminance (250 cd/m^2). The vMON-185-3G is equipped with a 18.5" high resolution (1920H x 1080V) LCD screen with high contrast (1000:1) and luminance (350 cd/m^2).
3. **Left/Right Speakers**: Local near field stereo audio monitoring is achieved through the use of two (left/right) speakers. The speaker behavior may be adjusted with controls in the **Audio** menu. Refer to the **Front Panel Control Operation** section of this chapter.
4. **SDI1**: Press this button to select the SDI1 input. When selected, the indicator in this button lights blue.
5. **SDI2**: Press this button to select the SDI2 input. When selected, the indicator in this button lights blue.
6. **HDMI**: Press this button to select between DVI/HDMI/VGA input signals. When selected, the indicator in this button lights blue.
7. **Function Keys**: There are five **Function Keys, F1 – F5**. These keys are programmable buttons which may be set up to quickly turn a variety of display features and functions on or off. Refer to the **Function** descriptions in the **Menu and Options** section of this chapter.
8. **S-Mode**: Pressing the **S-Mode** key lights it blue. Following this press with the press

of **Function Key F1** – **F5** with cause the User 1 – User 5 actions you have programmed in the menus to take effect.

9. **PIP/PBP**: Press this button to select between Single, PIP, and PBP modes.

10. **SWAP/1:1**: When in PIP or PBP modes, press this button to swap the images in the two windows. When in Single mode, press this button to display the image at 1:1 pixel to pixel.

11. **ZOOM/WIN SEL**: When in Single mode, press this button to zoom in. When in PIP or PBP mode, press this button to select windows to adjust parameters of the selected window.

12. **Menu**: This button allows you to enter or exit the monitor set up menus or return to a previous menu. All of the functions and features of the monitor can be adjusted within the menu structure. Refer to the **Menu and Options** section of this chapter.

13. **Volume L-R**: Rotate the **Volume L-R** knob to adjust the level of the audio being heard in the speakers. Press the knob to select between speaker volume or headset volume adjustment.

    While the menus are activated after pressing the **Menu** button, rotate or press this knob to move left or right in the menu or to select various menu items. Refer to the **Menu Navigation** section of this chapter.

14. **Image Up-Dn**: Press this knob to select between adjusting Brightness, Contrast, and Chroma. Then rotate this knob to adjust the selected characteristic.

    While the menus are activated after pressing the **Menu** button, rotate or press this knob to move up or down in the menu or to select various menu items. Refer to the **Menu Navigation** section of this chapter.

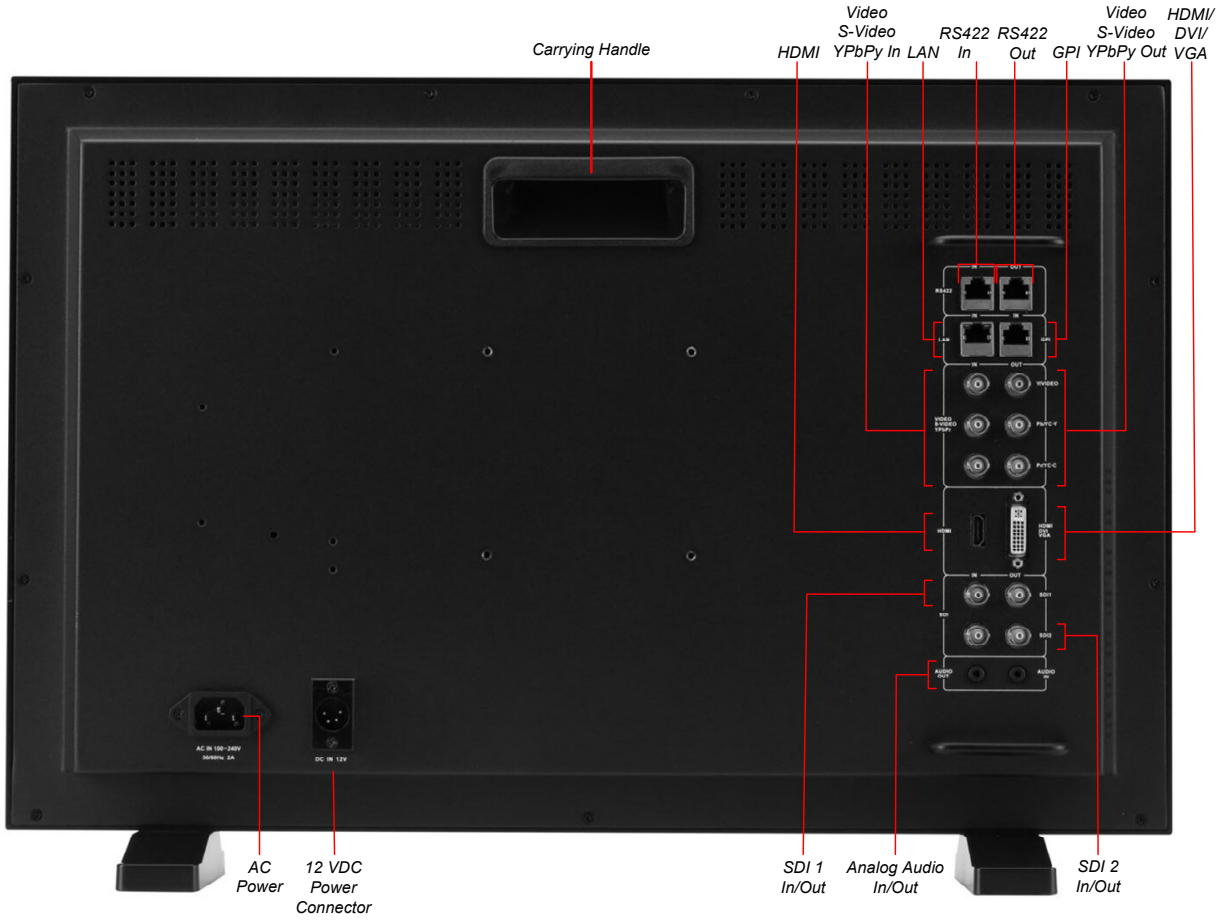
15. **Input SDI SDI HDMI**: This button is used to select which input is to be monitored.

16. **Tally**: This indicator may be lit red or green and is controlled by the GPI interface or by the RS422 port using TSL3.1 or TSL4.0 protocol.

Rear Panel

The Rear Panels for the two products are essentially the same and are shown in Figure 2-3.

Figure 2-3: *v*MON-240-3G2 / *v*MON-185-3G Rear Panel



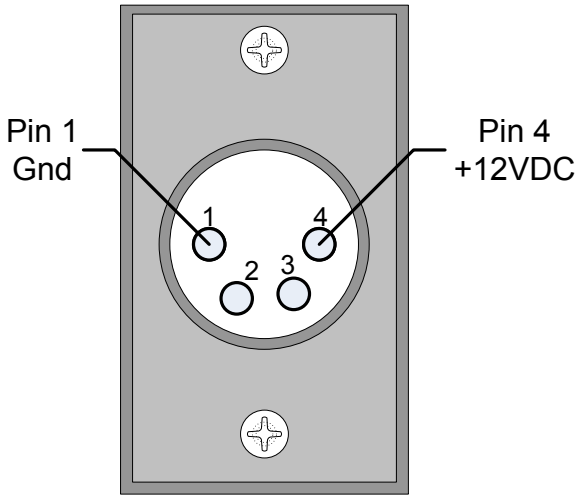
1. **AC Power**: The monitor receives power from the AC inlet, which is a standard IEC receptacle for 100 to 240 VAC ±10%, 50/60 Hz power connection. Four regional AC power cords, supplied according to shipping region, are available.

Important:

By design, the supplied AC mains power cord will only plug into a three-prong grounded outlet for your safety. If the plug does not fit into the outlet, contact an electrician to replace the obsolete outlet.

2. **DC Power**: This is a 4-pin XLR-M jack. A 12V battery (not supplied) or a 12VDC 3A power supply (not supplied) can be connected to this connector for operation when not powered by the AC mains. The pinout of this connector is shown in Figure 2-4. Observe the polarity shown.

Figure 2-4: DC Power Connector Pinout



3. **SDI 1 In/Out**: These connectors receive and reclock a 3G/HD/SD-SDI signal to be monitored. Refer to the Tables and Block Diagrams in Chapter 3 of this manual.

4. **SDI 2 In/Out**: These connectors receive and reclock a second 3G/HD/SD-SDI signal to be monitored. Refer to the Tables and Block Diagrams in Chapter 3 of this manual.

5. **Video/S-Video/YCbCr In**: These connectors input Analog video (composite), component (YCbCr,YPbPr, RGB) and S-Video(Y/C) signals. Refer to the Tables and Block Diagrams in Chapter 3 of this manual.

6. **Video/S-Video/YCbCr Out**: These connectors loop through the Analog video (composite), component (YCbCr,YPbPr, RGB) and S-Video(Y/C) signals being monitored. Refer to the Tables and Block Diagrams in Chapter 3 of this manual.

7. **HDMI**: An HDMI 2.0 input is provided.

8. **HDMI/DVI/VGA**: This DVI input supports a DVI signal, an HDMI signal (via an HDMI-DVI converter), or a VGA signal (via a VGA-DVI converter).

9. **Audio In/Out**: Audio In is used to monitor an analog signal. Audio Out is a 3.5mm connector that can be used to monitor the speaker audio with an earphone.

10. **RS-422 In**: A RS-422 connection is provided. This uses an adaptive TSL3.1 or TSL4.0 protocol. This protocol supports a dynamic UMD/Tally control. The RS-422 interface operates at 38400 baud, 8-bit data, 1 stop bit and even parity. Refer to the pinout in Figure 2-5 and to the connection chart in Table 2-1.

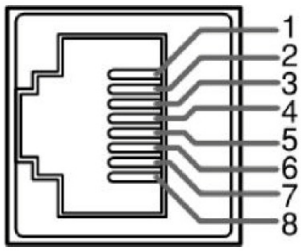
    Note: Use the RX+ and RX- pins for RS422 signal reception with TSL3.1 or TSL4.0 protocol for UMD and Tally control.

11. **RS-422 Out:** This provides a pass through for the signal connected to the **RS-422 In** connector.

Table 2-1: RS-422 Pin Descriptions

Pin	Function	Description
1	GND	Ground connection
2	GND	Ground connection
3	TX-	RS-422 TX-
4	RX+	RS422 RX+
5	RX-	RS422 RX-
6	TX+	RS-422 TX+
7	NC	No Connection
8	NC	No Connection

Figure 2-5: RS-422 Jack Pinout



12. **GPI**: A RS-422 connection is provided to provide external control or some of the monitor functions. Refer to the pinout in Figure 2-5 and to the descriptions in Table 2-2.

Table 2-2: GPI Pin Descriptions

Pin	Function	Description
1	GPI1	Enable GPI1 when low (GND). The GPI1 function can be set in a menu.
2	GPI2	Enable GPI2 when low (GND). The GPI2 function can be set in a menu.
3	GPI3	Enable GPI3 when low (GND). The GPI3 function can be set in a menu.
4	TX	These connections can be used for software upgrades. Contact Wohler Technical Service for more information.
5	RX	
6	GPI4	Enable GPI4 when low (GND). The GPI4 function can be set in a menu.
7	Null	Null (No Connection)
8	GND	Ground connection

13. **LAN**: This Ethernet port can be used for remote network control. Please contact

Wohler Technical Service for further information.

14. **Carrying Handle**: This handle provides an easy way to carry the monitor between locations.

Features

The vMON-185-3G and vMON-240-3G2 monitors contain a wide variety of features that make them stand out as professional monitoring products. These features are described in this section:

High Brightness LCD Panels: High brightness, high contrast, high-speed response, and wide viewing angle technology makes these monitors useful, even under a wide variety of lighting conditions.

High Brightness Tally Indicator: The tally function, via GPI or LAN port, consists of a bright light above the LCD screen with two colors, red and green.

Auto-detection of all Color Systems: These monitors automatically detect the PAL or NTSC color system automatically.

3D Video Decoder: These monitors process 3D decoding on VIDEO signals, to realize better reduction of cross color.

Motion-Adaptive Interlace to Progressive Conversion: These monitors convert interlaced video to progressive video according to motion detection, to reduce the appearance of serrations in the image.

10-BIT Signal Processing: Signal input, signal processing, and image output are all performed with 10-bit data processing, to clearly display the details of the image.

Support Multiformat SDI Signals: The SDI interface supports SD-SDI, HD-SDI, dual link HD-SDI, and 3G SDI inputs.

Y/C Input: Decomposition for the luminance signal (Y) and chrominance signals (C) of the video signal can be input through this connector.

SDI Input: Supports multi-format SDI input: SD-SDI, HD-SDI, and 3G SDI. These monitors support SMPTE425M-A/B 4:4:4 signals.

YPbPr Input: A YPbPr video signal (compatible YCbCr) can be input through this connector.

HDMI/DVI/VGA Input: HDMI signals can be input via an HDMI to DVI-I converter through the DVI connector. A DVI signal can be input through the DVI connector. A VGA signal can be input via a VGA to DVI-I converter through the DVI connector.

PIP/PBP: Two SDI input signals can be displayed simultaneously using the PIP (picture in picture) and PBP (picture by picture) modes. One SDI input signal can also be displayed simultaneously with a VIDEO, S-VIDEO, COMPONENT, or HDMI signal, showing two images on the screen.

SWAP Function: In PIP/PBP mode, the two pictures can be swapped.

Color Temperature: Different color temperatures can be selected freely.

Image Size Setting: The display mode can be switched between 16:9, 4:3, full

screen, 1:1, and the original image proportions.

Marker Setting: These monitors can display frame borders, a center marker, and safety area.

HV Delay: These monitors can display the horizontal and vertical blanking areas of SDI input signal.

Color Space: The available color spaces include: Rec 709, EBU, DCI P3 D65, DCI P3, Rec2020, USER.

Color Calibration: These monitors support color calibration with imported color data of an image being measured by a color analyzer.

Scan Mode: Scan mode includes Full Scan, Overscan, and Underscan. Full scan displays the content of all areas of the input signal. Overscan displays 105% of the area of the input signal. Underscan displays 95% of the area of the input signal.

Part Zoom In: Zoom in any part of the picture, to observe picture details more clearly, and to assist in focus.

Audio Level Meters (UV+PPM): Display the audio level meter (UV+PPM) for SDI embedded audio.

Waveform: These monitors can display input signal waveform and color scopes for SDI signal input monitoring. This includes luminance waveform and CbCr waveform. The Luminance waveform will marks with red if it is above the value specified by the user.

Focus Assist: Focus assist aids the cameraman's ability to focus on the subject by marking the sharpest edge of the image with red.

False Color: False color can intuitively observe and calculate illumination level in the image. The luminance and illumination values display, mapping as luminance level from darkest to brightest, displaying blue, cyan, green, yellow, orange and red in turn.

Histogram: A YRGB histogram can display the hue distribution of an entire image input from SDI. It can intuitively display the exposure of the image and display the three R, G, B channels independently.

Vector scope: This is a Vector UV analysis for a color bar signal input.

Overexposure: The Overexposure indication will help the cameraman accurately control lighting to avoid overexposure. This is achieved by marking the areas where brightness exceeds the user-specified range (95% by default) with a zebra pattern.

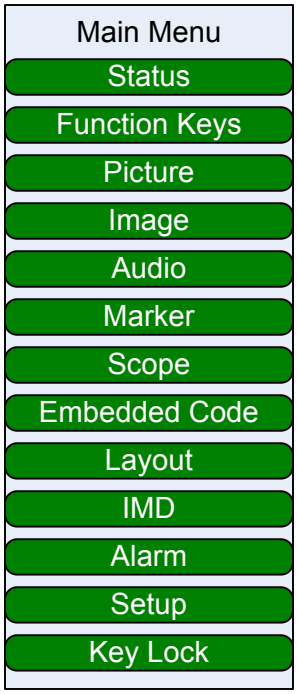
Pixel Measurement: These monitors can measure the specific position and RGB value of any pixel. They can also compare the YRGB value between any two pixels.

Timecode: These monitors can display SMPTE timecode (LTC, VITC1, VITC2) from an SDI input. This is used to identify and synchronize video data streams.

Menus and Options

You may set most options or view a variety of system information using the self-contained menus. Figure 2-6 is a diagram of the **Main Menu**. Press the **Menu** button to access the **Main Menu**.

Figure 2-6: Main Menu List



Menu Navigation

Press the **Menu** button to access the **Main Menu**, which is a list of the submenus. Press the **Menu** button again to exit the menu system when you are finished.

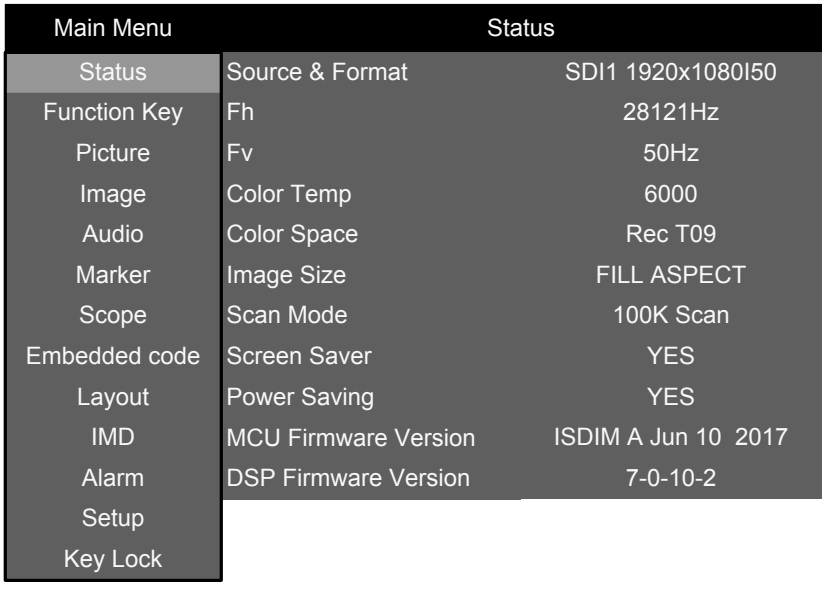
After the initial press of the **Menu** button, use the following steps to navigate through the main menu and submenus:

1. Rotate the **U-D (Up-Down)** knob to highlight the submenu of your choice. Press the **U-D** knob to enter the submenu.
2. Within the submenu, rotate the **U-D** knob to travel up or down in the submenu to find the item you would like to change and then press it. Then rotate the **U-D** or **L-R** knobs, depending upon the nature of the setting, to scroll through the list of available settings for that item. To select the needed setting, press the knob you used to adjust the setting. Repeat this process to make all of the changes you would like to make in that submenu.
3. When you have finished making changes to the submenu, press the **Menu** button to exit it. At this point, you may again rotate the **U-D** knob to travel up or down the list of submenus, as in Step 2.
4. When you are finished with the menu system, press the **Menu** button to exit.

Status Menu

This menu selection displays system status of various elements within the monitor.

Figure 2-7: Status Menu



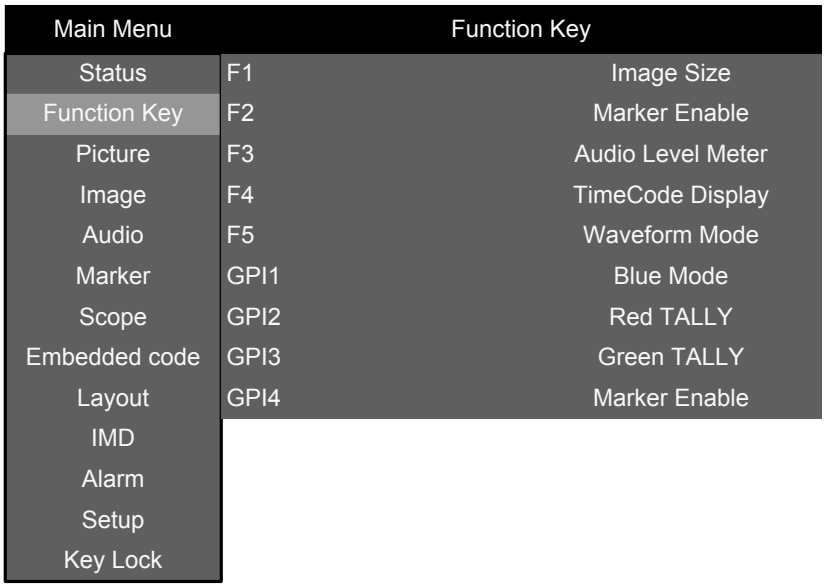
1. **Source & Format:** Current window input signal and resolution.
2. **Fh:** The line frequency of the current window input signal.
3. **Fv:** The field frequency of the current window input signal.
4. **Color Temp:** The current color temperature.

5. **Color Space:** The current color space.
6. **Image Size:** The image size of the current window input signal.
7. **Scan Mode:** The signal scan mode of the current window input signal.
8. **Screen Saver:** System screen saver status.
9. **Power Saving:** System power saving mode status.

Function Key

This menu selection displays the assignments of each Function Key and of each GPI:

Figure 2-8: Function Key Status

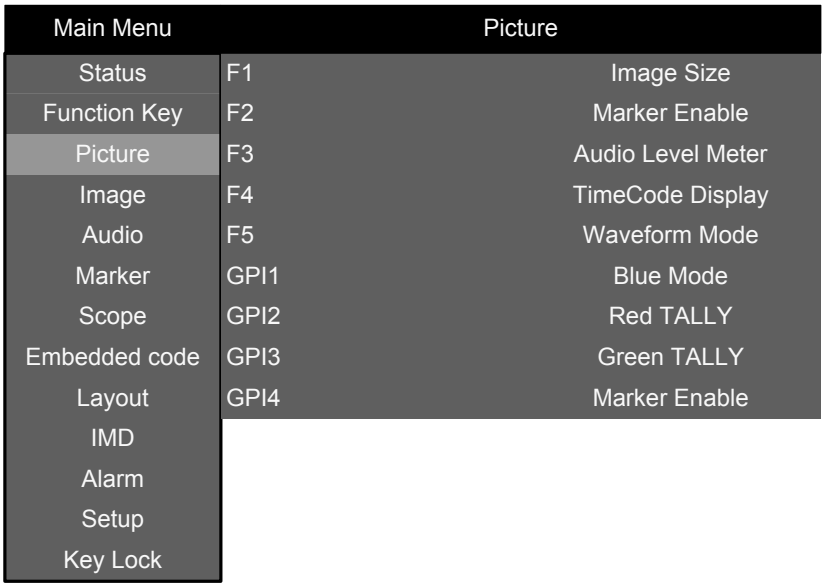


1. **F1, F2, F3, F4, F5:** The Function Keys can be set to the following functions: Image Size, No Definition, Static Frame, Time Code Display, Audio Level Meter, Audio Phase, Waveform Mode, Vector, Focus Assist, Pixel Measurement, False Color, Zebra, Histogram, Picture Flip, Fast Mode, Blue Mode, Gray Mode, Marker Setting, or Black Stretch.
2. **Note:** When the Function Key is set to Black Stretch, pressing the function key will increase the brightness of the low-brightness part of the screen.
3. **GPI1, GPI2, GPI3, GPI4:** Can be set to the following functions: Blue Mode, Image Size, Marker Display, No Definition, Red TALLY, Green TALLY, SDI1, SDI2, HDMI, DVI, VGA, YPbPr, Video, S-Video.

Picture

The Picture Menu allows setting and customizing of the various picture parameters:

Figure 2-9: Picture Menu



1. Backlight: Backlight Adjustment 0-100.
2. Data Levels: Select the Data Level as follows:
    a. Limit (64-940): Selects Limit (64-940), video level.
    b. Extend (64-1023): Selects Extend (64-1023), ultra-white.
    c. Full (0-1023): Selects Full (0-1023), full data level.
    d. Custom: Custom allows user definition.
3. Brightness: Brightness Adjustment 0-100.
4. Contrast: Contrast Adjustment 0-100.
5. Sharpness: Sharpness Adjustment 0-15.
6. Color: Saturation Adjustment 0-100.
7. Hue: Color Adjustment 0-100.
8. Color Temp: There are three modes of the fixed color temperature selection 5600K, 6500K, 9300K, and a Custom selection.
    a. 5600K
    b. 6500K
    c. 9300K
    d. Custom:
        i. Red Gain 0-255
        ii. Green Gain 0-255
        iii. Blue Gain 0-255
        iv. Red offset 0-255

v. Green offset 0-255

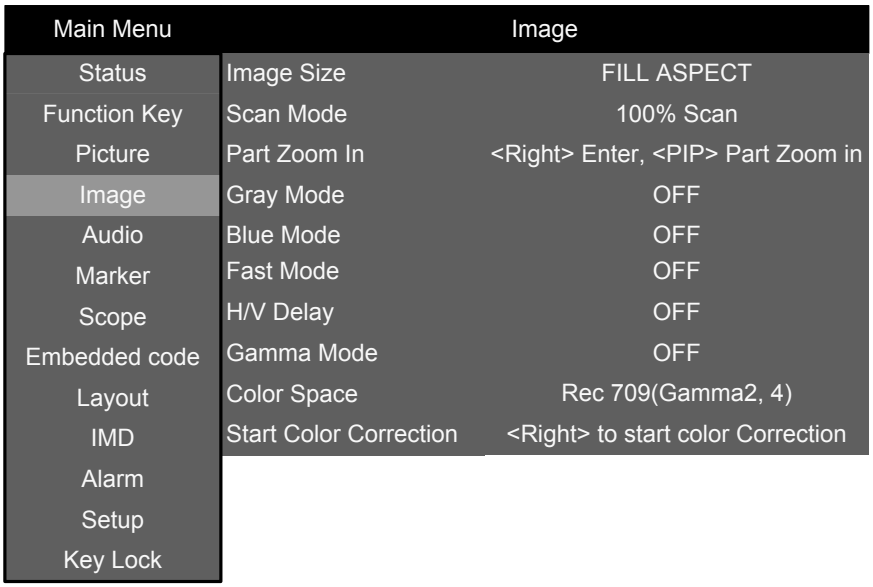
vi. Blue offset 0-255

Note: Custom allows user definition to adjust the gain value and offset value of Red, Green and Blue. It will save the color temperature setting automatically.

Image

The Image Menu allows setting of the various parameters of the displayed image:

Figure 2-10: Image Menu



1. **Image Size:** The size of the displayed image is adjusted as follows:
    a. **FILL ASPECT**: Original ratio of the signal source.
    b. **Full Screen**: Full screen image.
    c. **1:1** : A 1:1 pixel-to-pixel display. This setting is not valid in PIP sub-screen and PBP mode.
    d. **16:9** : A 16:9 aspect ratio.
    e. **4:3** : A 4:3 aspect ratio.
2. **Scan Mode**: The Scan Mode can be adjusted as follows:
    a. **100% Scan**: A 100% Image display.
    b. **Over Scan 5%**: A 105% Image display.
    c. **Under Scan 5%**: A 95% image display.
3. **Part Zoom In**: Zoom in any part of the picture, to view picture details more clearly, and assist for focus. Set **Right: Enter** or **PIP: Part Zoom In**.
4. **Gray Mode**: Monochrome mode with black and white image. Set **On** or **Off**.
5. **Blue Mode**: Display in Blue only. Set **On** or **Off**.
6. **Fast Mode**: Interlace scan without converting into progressive scan. Set **On** or **Off**.

7. **H/V Delay**: Display horizontal & vertical blanking area of SDI input signal. Set **On** or **Off**.
8. **Gamma Mode**: Choose a different Gamma or turn it off:
    a. Turn off
    b. Gamma 2.0
    c. Gamma 2.2
    d. Gamma 2.4
    e. Gamma 2.6
    f. Rec.2100 HLG 1.0
    g. Rec.2100 HLG 1.1
    h. Rec.2100 HLG 1.2
    i. Rec.2100 HLG 1.3
    j. Rec.2100 HLG 1.4
    k. Rec.2100 HLG 1.5
    l. ST2084 PQ
    m. S-Log3 (HDR)
    n. Slog (SDR)
    o. Slog2 (SDR)
    p. Slog3 (SDR)
9. **Color Space**: The Color Space may be chosen from the following selections:
    a. Bypass
    b. Rec 709
    c. EBU
    d. DCI P3 D65
    e. DCI P3
    f. Rec2020
    g. USER1
    h. USER2
    i. Bypass
    j. Rec 709
    k. EBU
    l. DCI P3 D65
    m. DCI P3
    n. Rec2020
    o. USER1
    p. USER2
10. **Start Color Correction**: First connect the monitor to a color analyzer

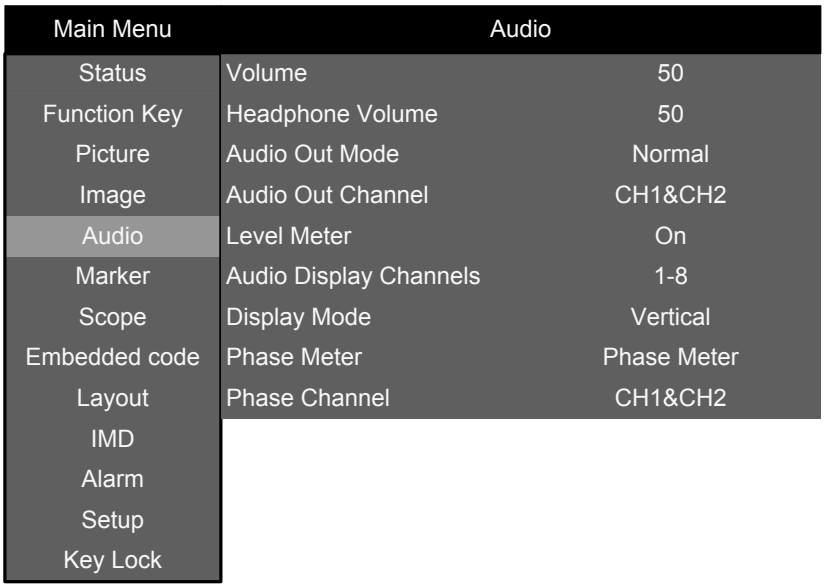
before starting **Color Correction**. Then press the **Right** key to start the **Color Correction**.

Note: If you accidentally start **Color Correction**, remove and reconnect the power cord to restart the monitor. This will cancel the operation and return the monitor to normal operation.

Audio

The Audio Menu allows setting of the various parameters related to monitoring of the audio program:

Figure 2-11: Audio Menu



1. **Volume**: Speaker volume adjustment 0-100.
2. **Headphone Volume**: Headphone volume adjustment 0-100.
3. **Audio Out Mode**: This setting only affects audio signals from the SDI and HDMI/DVI inputs. The settings are:
    a. **Normal**: Right and Left channels are output though their respective outputs normally.
    b. **Left Channel Mute**: The Left channel is muted, but the Right channel is output normally.
    c. **Right Channel Mute**: The Right channel is muted, but the Left channel is output normally.
4. **Audio Out Channel**: This setting selects which SDI and HDMI/DVI audio channels will be monitored audibly. The choices are:
    a. **CH1&CH2**: Only SDI embedded or HDMI/DVI channels 1 and 2 are output.
    b. **CH3&CH4**: Only SDI embedded channels 3 and 4 are output.
    c. **CH5&CH6**: Only SDI embedded channels 5 and 6 are output.
    d. **CH7&CH8**: Only SDI embedded channels 7 and 7 are output.

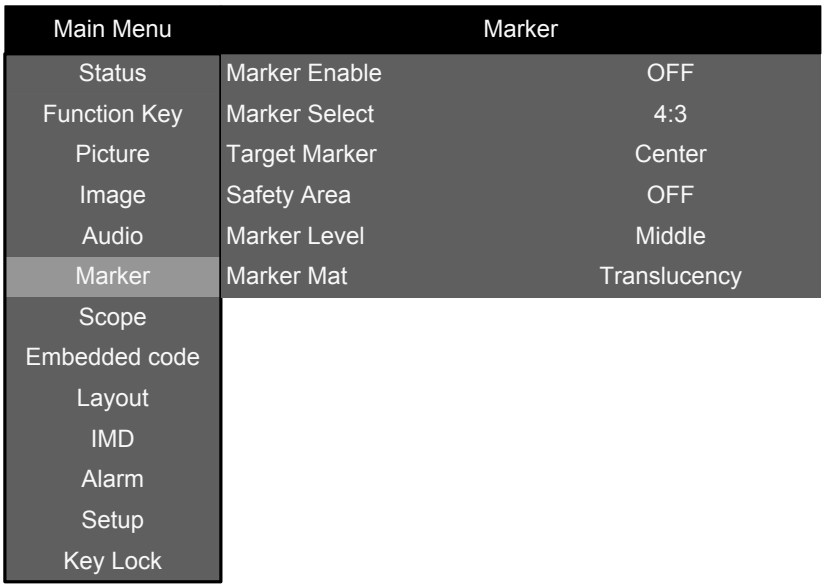
5. **Level Meter**: Selects whether Level Meters will be displayed. Set ON or OFF.
6. **Audio Display Channels**: Selects which channels will be displayed on the Level Meters.
    a. **1-4**: Channels 1 – 4 of an SDI signal are displayed.
    b. **1-8**: Channels 1 – 8 of an SDI signal are displayed.
    c. **1-16**: Channels 1 – 16 of an SDI signal are displayed.
    d. **9-16**: Channels 9 – 16 of an SDI signal are displayed.
    e. **1-2**: Channels 1 – 2 of an SDI signal are displayed.

    Note: for HDMI/DVI signals, only channels 1 – 2 are displayed, regardless of this setting.
7. **Display Mode**: This setting determines whether the orientation of the Audio Level Meters:
    a. **Horizontal**: The Audio Level Meters will be displayed horizontally at the left bottom of the screen.
    b. **Vertical**: The Audio Level Meters will be displayed vertically at the left bottom of the screen.
8. **Phase Meter**: This setting controls whether to display Phase Meters. Set ON or OFF.
9. **Phase Channel**: This setting controls which pair of channels will be analyzed for audio phase and displayed on the Audio Level Meters:
    a. **CH1&CH2**: Only SDI embedded or HDMI/DVI channels 1 and 2 are analyzed.
    b. **CH3&CH4**: Only SDI embedded channels 3 and 4 are analyzed.
    c. **CH5&CH6**: Only SDI embedded channels 5 and 6 are analyzed.
    d. **CH7&CH8**: Only SDI embedded channels 7 and 7 are analyzed.

Marker

The Marker Menu allows setting of the various parameters related to the appearance of the on screen markers:

Figure 2-12: Marker Menu



1. **Marker Enable**: Selects whether all markers will appear on the Screen:
    a. **ON**: All markers on.
    b. **OFF**: All markers off.
2. **Marker Select**: This setting defines the format of the markers:
    a. **OFF**: No marker display
    b. **4:3**
    c. **16:9**
    d. **15:9**
    e. **14:9**
    f. **13:9**
    g. **1.85:1**
    h. **2.35:1**
3. **Target Marker**: This relates to the center marker.
    a. **ON**: Turn on target marker.
    b. **OFF**: Turn off center mark.
    c. **USER**: Turn on the user target tag.
4. **Safety Area**: This relates to the size of the Safety Area display.
    a. **OFF**: No Safety Area display.
    b. **80%**: 80% Safety Area display.
    c. **85%**: 85% Safety Area display.

d. **88%**: 88% Safety Area display.

e. **90%**: 90% Safety Area display.

f. **93%**: 93% Safety Area display.

5. **Marker Level**: This setting defines the Marker line color.

   a. **White**: Maker line is white.

   b. **Gray**: Marker line is gray.

   c. **Black**: Marker line is black.

6. **Target Marker**: This describes the apperance of the screen area outside of the Safety Area Marker line:

   a. **OFF**: The area outside of the Safety Marker line is transparent.

   b. **Gray**: The area outside of the Safety Marker is gray.

   c. **Black**: The area outside of the Safety Marker is black.

   d. **Half Transparency**: The area outside of the Safety Marker is half transparent.

Scope

The Scope Menu allows setting of the various parameters related to the appearance of the scopes:

Figure 2-13: Scope Menu

1. **Waveform Mode**: This setting controls the appearance of the Waveform display.

   a. **OFF**: Turn off the waveform mode.

   b. **LUMA**: Display the Y(luminance) waveform.

   c. **YUV**: Display YCbCr waveform.

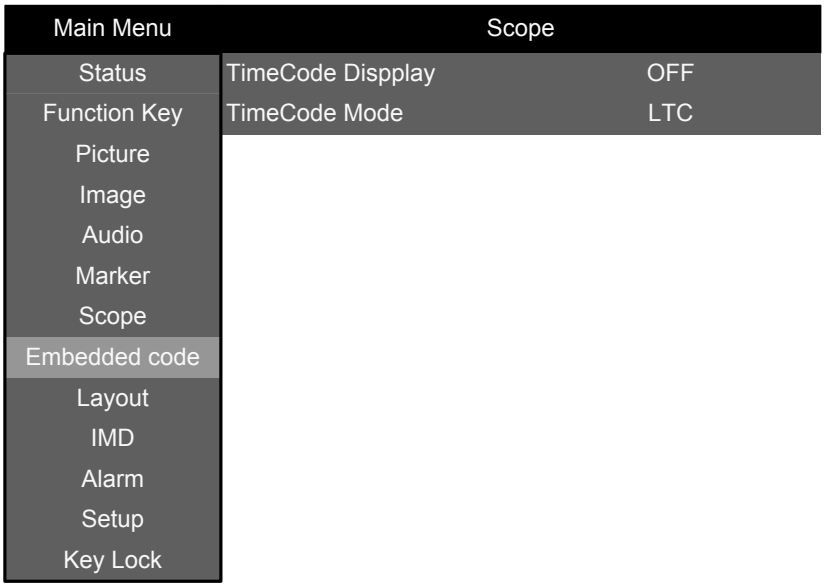
    d. **FULL LUMA**: Display Y (luminance) waveform with a one-to-one correspondence between its horizontal coordinates and image horizontal coordinates.

2. **Waveform Alarm**: The Waveform Alarm can be set to any percentage between 84%-100%. It will alarm when the measured waveform meets or exceeds the value you set and mark these areas in red. Set 84%-100%.
3. **Waveform Scale**: This sets the Waveform Scale:
    a. Digital: Display in digital.
    b. IRE: Display in percentage of luminance.
4. **Histogram Mode**: This settings controls the appearance of the Histogram Display:
    a. **OFF**: Turn off histogram mode.
    b. **LUMA**: Display the luminance histogram.
    c. **RGB**: Display the R G B histogram.
5. **Vector**: This turns the Vector Display on or off.
6. **Vector Scale**: This controls the percentage for the Vector Display:
    a. **100%** : Vector 100% display.
    b. **75%** : Vector is zoomed out to 75% display.
7. **Zebra**: This controls the appearance of the Zebra display. Set to ON or OFF.
8. **Zebra Level**: The Zebra level can be set to any percentage between 84% and 100%. It will alarm when the measured luminance reaches or exceeds the value you set, and it will overlay the display with red zebra stripes.
9. **Pixel Measure**: Controls pixel measure. Set to ON or OFF.
10. **False Color**: Controls false color. Set to ON or OFF.
11. **Focus Assist**: Controls focus assist. Set to ON or OFF.
12. **Focus Gain**: This is the Focus Gain adjustment 0-31.
13. **Focus Color**: This controls the color of the Focus indication:
    a. **Red**: The Focus color will be Red.
    b. **Green**: The Focus color will be Green.
    c. **Blue**: The Focus color will be Blue.
    d. **White**: The Focus color will be White.
14. **H Flip**: Controls the Horizontal flip. Set to ON or OFF.

Embedded Code

The Embedded Code Menu is only used when monitoring SDI signals.

Figure 2-14: Embedded Code Menu

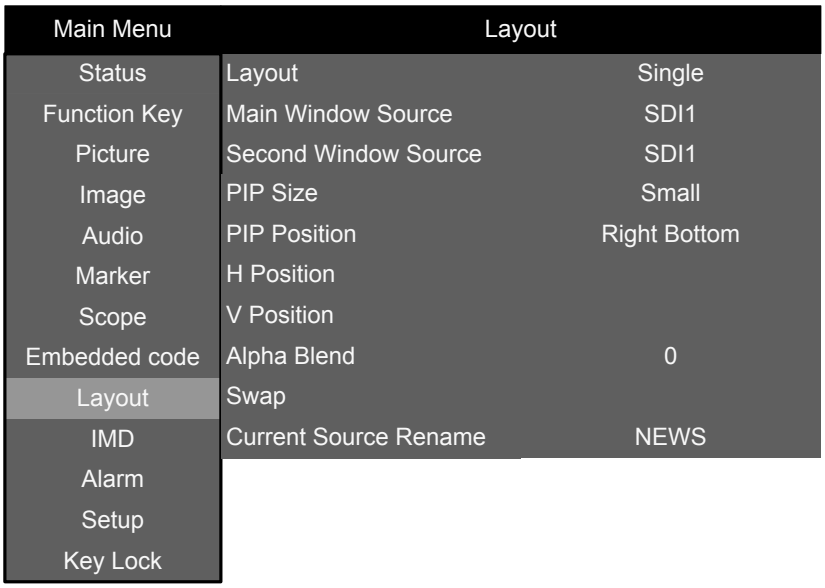


1. **Time Code Display**: This setting controls the display of Time code. Set to ON or OFF
2. **Time Code Mode**: This setting adjusts the time code mode:
    a. **LTC**: Time code will display as LTC mode.
    b. **VITC1**: Time code will display as VITC1.
    c. **VITC2**: Time code will display as VITC2.

Layout

The Layout Menu is used when setting up Picture-in-Picture monitoring. It will determine the layout of the pictures on the screen.

Figure 2-15: Layout Menu



1. **Layout**: This setting determines whether the monitor will display a picture-in-picture and if so, what the arrangement of the pictures will be:
    a. **Single**: Display only a single signal picture on screen.
    b. **PIP**: Display two signals pictures simultaneously on the screen. The sub picture will be in the main picture.
    c. **Side by Side (PBP):** Display the pictures from two signals side-by-side simultaneously on the screen, with the sub picture at the right side of the main picture.

Note: In PIP/PBP mode, one of the signals must be SDI1 and the other signal may be any of other input signals. Two SDI signals can be displayed simultaneously.

2. **Main Window Source**: Select the Main Window source input from:
    a. Video
    b. S-Video
    c. YPbPr
    d. SDI1
    e. SDI2
    f. VGA
    g. HDMI

Note: YPbPr is compatible with RGB, YCbCr, YPbPr.

3. **Second Window Source**: When two pictures are displayed, you may select the Second Window source input from:

a. Video
b. S-Video
c. YPbPr
d. SDI1
e. SDI2
f. VGA
g. HDMI

Note: YPbPr is compatible with RGB, YCbCr, YPbPr.

4. **PIP Size**: When two pictures are displayed, you may select size of the second window:
    a. **Large**: The second window is large size.
    b. **Middle**: The second window is medium size.
    c. **Small**: The second window is small size.
5. **PIP position**: When two pictures are displayed, you may select the location of the second window:
    a. **Left Top**: The second window will be in the left-top corner of the screen.
    b. **Right Top**: The second window will be in the right-top corner of the screen.
    c. **Center**: The second window will be in the center of the screen.
    d. **Right Bottom**: The second window will be in the right-bottom corner of the screen.
    e. **Left Bottom**: The second window will be in the left-bottom corner of the screen.
    f. **Custom**: The position of the second window will be adjusted by the user. When this option is selected, the Horizontal Position and Vertical Position menu items will pop up.
6. **H Position**: If the PIP Position is set to Custom, this adjustment will appear. It can be adjusted from 0 to 100 to locate the second picture anywhere horizontally.
7. **V Position**: If the PIP Position is set to Custom, this adjustment will appear. It can be adjusted from 0 to 100 to locate the second picture anywhere vertically.
8. **Alpha Blend**: This adjusts the alpha blend of the PIP second window and the main window in degrees. When the value is 0, the second window is a translucent blend with the main window. When the value is 0, the second window is opaque.
9. **Swap**: In PIP and PBP mode, turn the VOLUME knob right to swap the signal images between the two windows.
10. **Current Source Rename**: The screen name of the current signal can be renamed. Up to 8 characters can be set. The setting process is as follows:
    a. Select the option to the character to be changed by pressing the

Volume L/R knob. The option is displayed as "xxxxxxxx ok" with the first character in red.

b. Rotate the **Volume L/R** knob to select the desired character (for example, N) and then press that knob. Now the display will show "Nxxxxxxx ok" and the second character position will be red.

c. Continue this procedure until the "ok" turns red, such as, "NEWSxxxx OK"

d. Next press the **Volume L/R** knob and the display will show "NEWSxxxx OK" with OK in yellow.

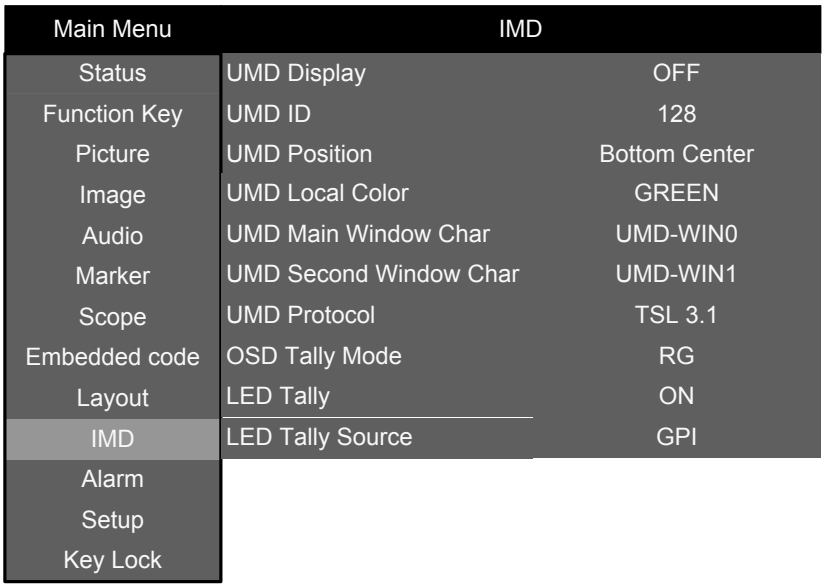
e. To save this change, now press **Menu** to exit and save.

Note: If you do not change the "ok" character from red to yellow and then press **Menu** to exit, the characters you set will not be saved.

IMD

The IMD Menu is used when setting up a UMD and Tally.

Figure 2-16: IMD Menu



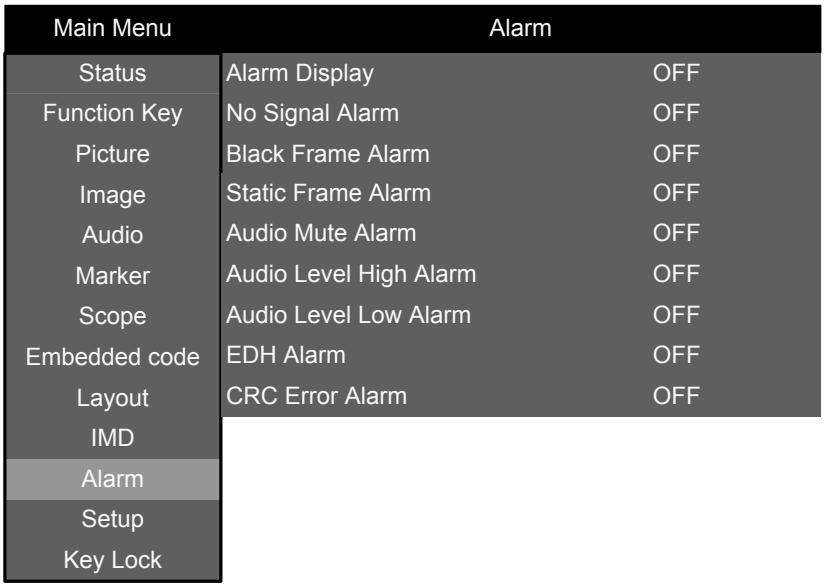
1. **UMD Display**: Controls the appearance of the UMD display. Set to ON or OFF.
2. **UMD ID**: The UMD ID can be set to any value from 128-255. It can be used for Multi-device cascading by setting different UMD IDs for different devices. In a remote control situation, this function can be used for distinguishing each device so as to remote control different devices.
3. **UMD Position**: The screen location of the UMD can be set:
   a. Top Left
   b. Top Center
   c. Bottom Center
   d. Bottom Right

4. **UMD Local Color**: The color of the UMD may be set as follows:
    a. Green
    b. Red
    c. White
5. **UMD Main Window Char**: The UMD screen name in the main window can be renamed. Up to 8 characters can be set. The setting process is as follows:
    a. Select the option to the character to be changed by pressing the **Volume L/R** knob. The option is displayed as "xxxxxxxx ok" with the first character in red.
    b. Rotate the **Volume L/R** knob to select the desired character (for example, U) and then press that knob. Now the display will show "Uxxxxxxx ok" and the second character position will be red.
    c. Continue this procedure until the "ok" turns red, such as, "UMD-WIN0 OK"
    d. Next press the **Volume L/R** knob and the display will show "UMD-WIN0 OK" with OK in yellow.
    e. To save this change, now press **Menu** to exit and save.
6. **Note:** If you do not change the "ok" character from red to yellow and then press **Menu** to exit, the characters you set will not be saved. "xxxxxxxx".
7. **UMD Second Window Char**: This setting only shows in PIP. The UMD screen name in the main window can be renamed. Up to 8 characters can be set. The setting process is the same as in the UMD Main Window Char.
8. **UMD Protocol**: The protocol for controlling the UMD has three choices:
    a. TSL3.1
    b. TSL4.0
    c. TSL5.0
9. **OSD Tally Mode**: One of four Tally modes may be selected:
    a. OFF: Turn off OSD Tally.
    b. RG
    c. GR
    d. RGY
10. **LED Tally**: Control the LED Tally. Select ON or OFF.
11. **LED Tally Source**: Select the source of the Tally:
    a. GPI
    b. TSL

Alarm

The Alarm Menu is used to enable or disable the various alarms.

Figure 2-17: Alarm Menu

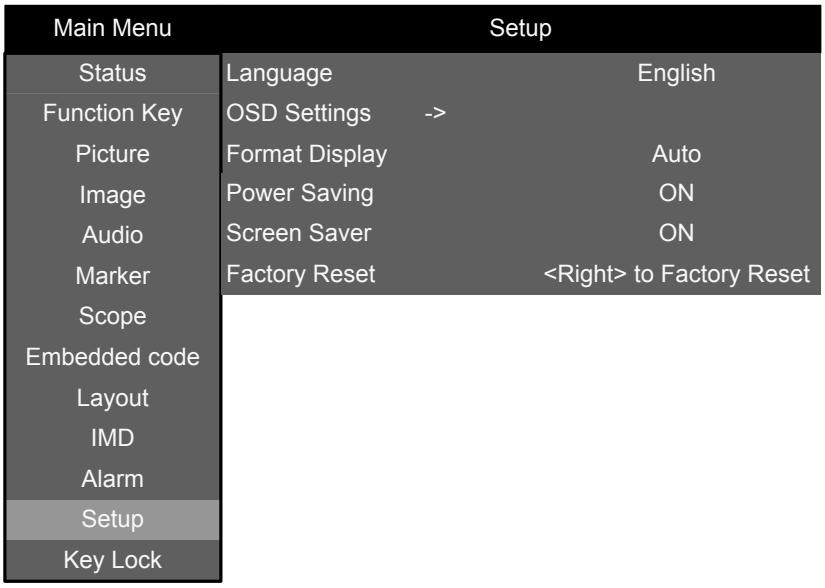


1. **Alarm Display**: Control the alarm display. Set to Off or On.
2. **No Signal Alarm**: Control the signal alarm. Set to Off or On.
3. **Black Frame Alarm**: Control the black frame alarm. Set to Off or On.
4. **Static Frame Alarm**: Control the static frame alarm. Set to Off or On.
5. **Audio Mute Alarm**: Control the audio mute alarm. Set to Off or On.
6. **Audio Level High Alarm**: Control the audio level high alarm. Set to Off or On.
7. **Audio Level Low Alarm**: Control the audio level low alarm. Set to Off or On.
8. **EDH Error Alarm**: Control the EDH error alarm. Set to Off or On.
9. **CRC Error Alarm**: Control the CRC error alarm. Set to Off or On.

Setup

The Setup Menu is used to adjust the basic setup of the monitor.

Figure 2-18: Setup Menu

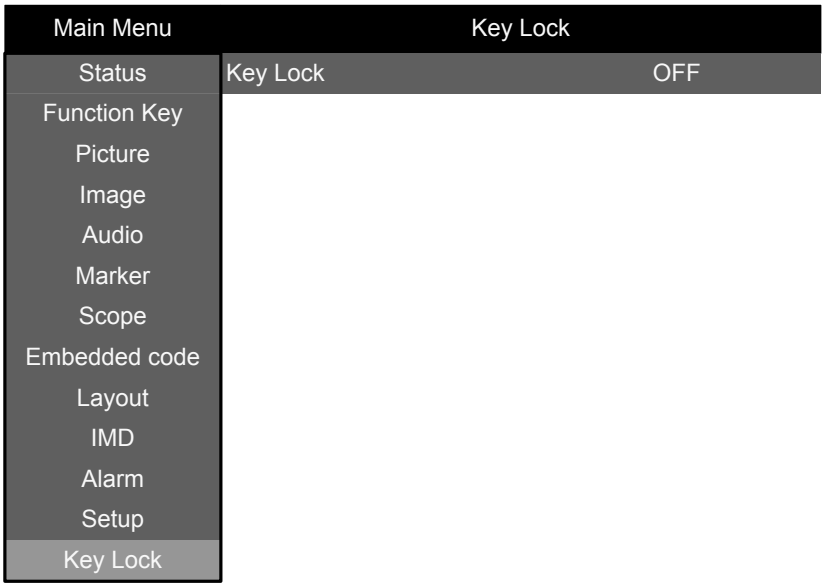


1. **Language**: Select the English or Chinese language in the menus.
2. **OSD Settings**: Adjust the way the Menu appears on the screen:
3. **Transparency**: 0 – 100.
4. **OSD Timeout**: 1-30 seconds. The Menu will vanish after this time if no buttons are pressed.
5. **H Position**: 0-100. This is the horizontal position in which the Menu will appear.
6. **V Position**: 0-100. This is the vertical position in which the Menu will appear.
7. **Format Display**: Select how the monitored signal format will appear on the display:
8. **OFF**: The signal format information will not appear.
9. **ON**: The signal format information will appear on the screen.
10. **Auto**: The signal format information will automatically display whenever the signal changes and then disappear after 4 seconds.
11. **Power Saving**: The monitor will enter power-saving mode and will switch off some functions when the main input is without a signal more than 10 minutes. This feature is invalid in when PIP/PBP is used. Set to Off or On.
12. **Screen Saver**: The monitor will enter screen saver mode when the main input is without signal. This feature is invalid in PIP/PBP status. Set to Off or On.
13. **Factory Reset**: Turn right the VOLUME knob to the right and the monitor will restore itself to its factory settings.

Key Lock

The Key Lock Menu is used to secure the monitor.

Figure 2-19: Key Lock Menu



1. **Key Lock**: When the Key Lock is turned on, only the MENU button, VOLUME (L/R) knob, and IMAGE (Up/Dn) knobs can be operated, but the rest cannot. Set to Off or On.

CHAPTER 3: Technical Info

Table 3–1: *v*MON-240-3G2 Specifications

Specification	Values/Domains
Power Requirements	100 VAC to 240 VAC ± 10%, 50/60Hz or 12 VDC
Power Consumption	32 Watts
Dimensions (H x W x D)	15.7” x 22.7” x 5.9” (401mm x 578mm x 150mm), standard 19” rack mounting
Shipping/Net Weight	22.8 lbs (10.3 kg) / 17.8 lbs (8.0 kg)
Supplied Accessories	AC Power Cord
Display Type	24" diagonal 526mm (H) x 296mm (V)
Aspect Ratio	16:9
Screen Resolution	1920H x 1080V
Luminance / Contrast	250 cd/m^2 / 1000:1
Audio Meter Channels	2-16 per screen
Color Depth	16.7 million
Video Processing	12-bit, no image delay
Backlight	LED
Video Inputs	• 2 x 3G/HD/SDI • 1 x HDMI 2.0 • 1 x DVI • 1 x Composite Video
Video Outputs	• 2 x 3G/HD/SD-SDI • HDMI • 1 x Composite Video
Audio Input	• 1 x 3.5mm stereo jack
Audio Output	• 1 x 3.5mm stereo headset jack • Stereo Speakers, 2.5W x 2

Table 3–2: *v*MON-185-3G Specifications

Specification	Values/Domains
Power Requirements	100 VAC to 240 VAC ± 10%, 50/60Hz or 12 VDC
Power Consumption	36 Watts
Dimensions (H x W x D)	13.2” x 17.4” x 5.9” (334mm x 441mm x 150mm), standard 19” rack mounting
Shipping/Net Weight	18 lbs (7.9 kg) / 13 lbs (5.9 kg)
Supplied Accessories	AC Power Cord
Display Type	24" diagonal 526mm (H) x 296mm (V)
Aspect Ratio	16:9
Screen Resolution	1920H x 1080V
Luminance / Contrast	350 cd/m^2 / 1000:1
Audio Meter Channels	2-16 per screen
Color Depth	16.7 million
Video Processing	12-bit, no image delay
Backlight	LED
Video Inputs	• 2 x 3G/HD/SDI • 1 x HDMI 2.0 • 1 x DVI • 1 x Composite Video
Video Outputs	• 2 x 3G/HD/SD-SDI • HDMI • 1 x Composite Video
Audio Input	• 1 x 3.5mm stereo jack
Audio Output	• 1 x 3.5mm stereo headset jack • Stereo Speakers, 2.5W x 2

Figure 3–1: *v*MON-240-3G2 Block Diagram

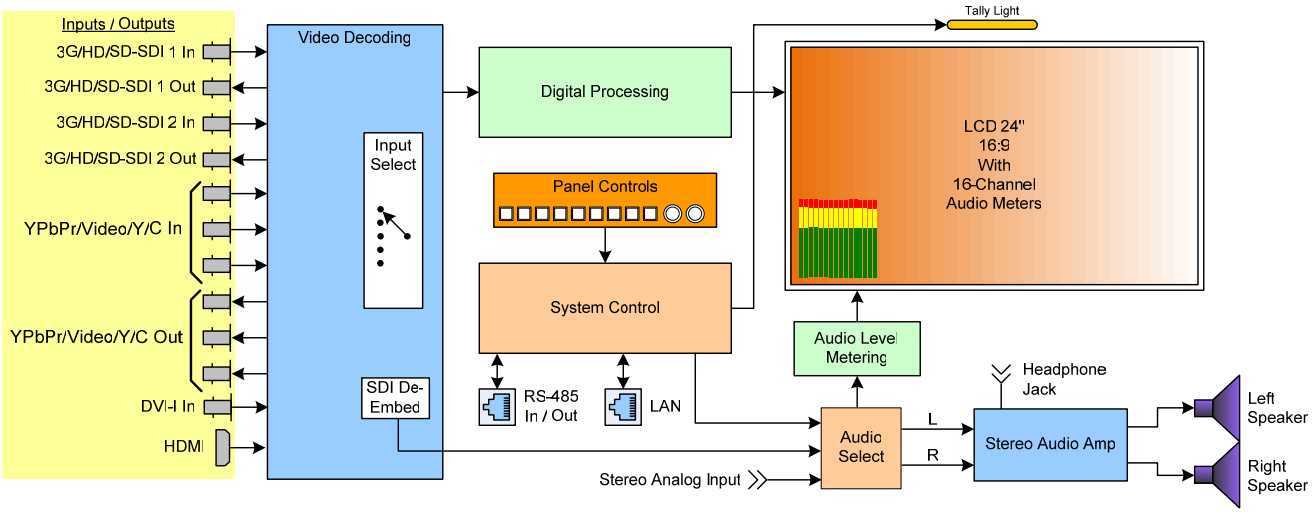


Figure 3–2: *v*MON-185-3G Block Diagram