*v*MON-4K In-Rack Series

12G/6G/3G/HD/SD-SDI, HDMI 4K Rack Mount Video Monitors

- ***v*MON-2440-4K**
- ***v*MON-3280-4K**
- ***v*MON-4210-4K**

User Guide

Part Number 821859, Revision A

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Last Update

September 23, 2025

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CHAPTER 1: Installation

Introduction

Overview

The *v*MON 4K In-Rack Series is a full-featured range of rack mounted video monitors ideal for mobile trucks, news and transmission control rooms, 4K 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 *v*MON 4K In-Rack Series consists of quad 4.1”, dual 8”, or dual 10.1” 4K monitors which support a variety of 12G/6G/3G/HD/SD-SDI and HDMI source inputs. They support a large variety of professional broadcasting features such as Audio Metering, Waveform, Histogram, and Vectorscope, making them brilliant monitors in 4K production workflows.

All standard frame rates and resolutions are supported from 12G-SDI, 6G-SDI, 3G-SDI, and HDMI input sources, and the dual SDI inputs have a selected SDI looping output. Up to 16 audio channels may be selected for visual monitoring using on-screen bar graph style level meters. Stereo speakers provide audio, and individual 3.5mm headphone jacks on the front panel for each screen provide 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.

Screen Maintenance

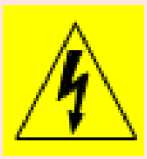
Please follow the guidelines below carefully to prevent discoloration, stains, and scratches on the screen:

- 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.

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.

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 *v*MON-3280-4K and *v*MON-4210-4K monitors connect to an AC mains power source (100 to 240 VAC, 37W, 50/60Hz) using an IEC power cord. The *v*MON-4210-4K connects to and is powered by a supplied 12V 4A power supply which connects to the AC mains power source (100 to 240 VAC, 42W, 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.

The *v*MON-3280-4K and *v*MON-4210-4K monitors may alternatively operate on a DC power source (12 VDC, 4A) using a 4-pin XLR connection.

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 *v*MON 4K In-Rack Series monitors can be operated easily and simply from controls on its front panel, as described in this chapter.

Front Panel

The front panel is shown in Figures 2-1, 2-2, and 2-3. This panel image is representative of each of the monitors in the *v*MON 4K In-Rack Series.

Figure 2–1: *v*MON-2440-4K Front Panel

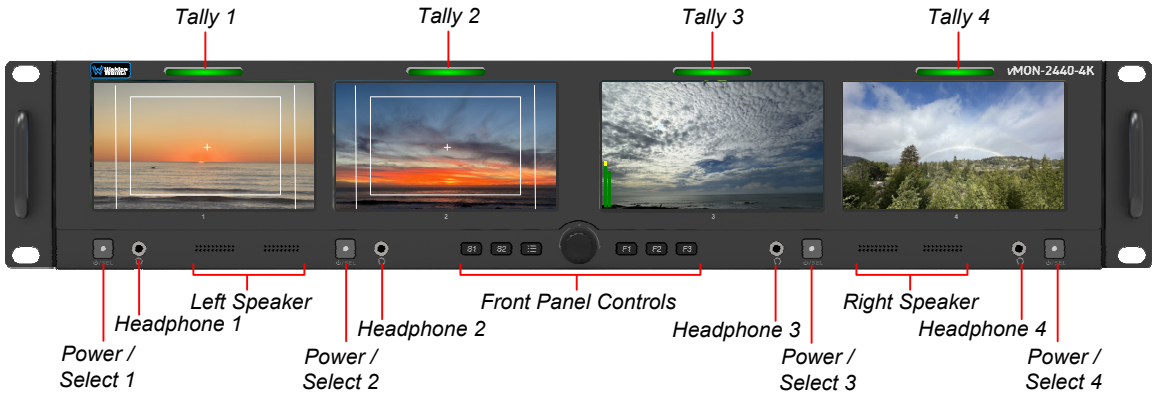


Figure 2–2: *v*MON-3280-4K Front Panel

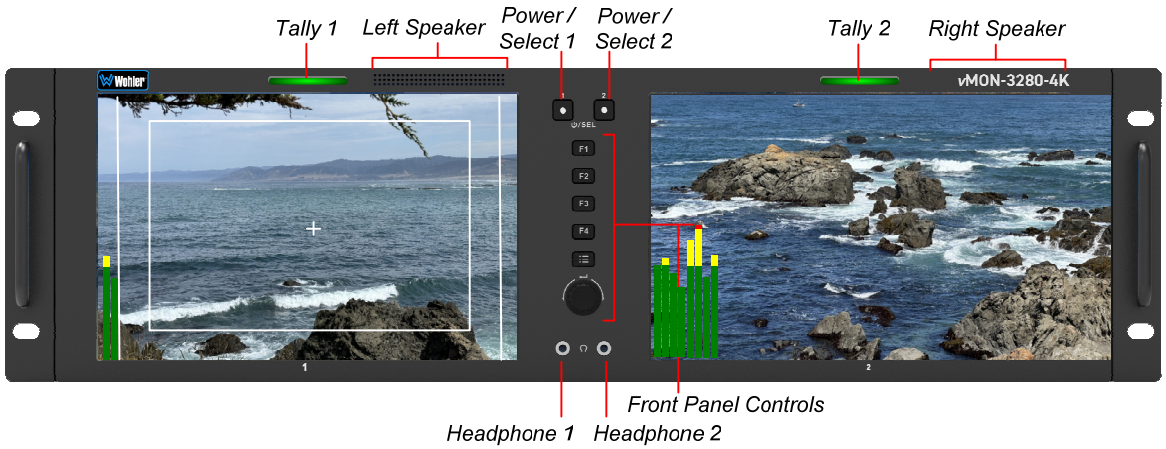
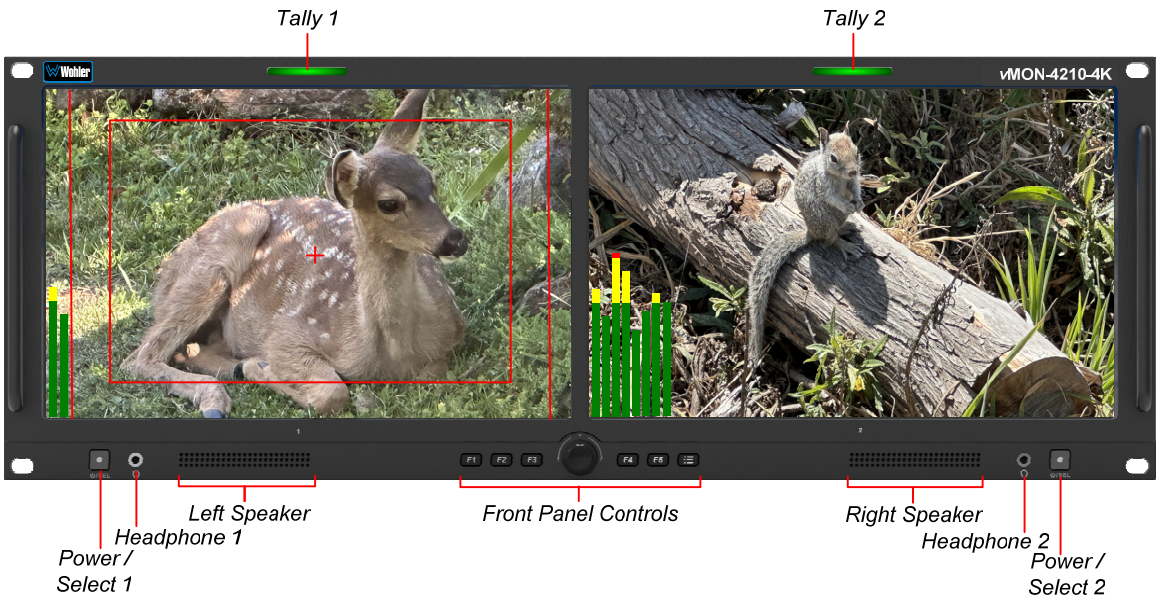


Figure 2–3: *v*MON-4210-4K Front Panel



1. **Power/Select:** The **Power/Select** indicator for each screen will be red when it is connected to power but the associated screen is turned off. Pressing the **Power/Select** button for 3 seconds will turn on the screen and this indicator will no longer be lit. Pressing the **Power/Select** button for 3 seconds will turn off the screen and return the indicator to red. There is one **Power/Select** button for each screen so that unused screens may be turned off.

   Whenever the screen is turned on, a short press on the **Power/Select** button will light the indicator blue, and that screen will be selected for use by the **Front Panel Controls**. Refer to the **Front Panel Control Operation** section of this chapter.

2. **LCD Screens**: The various models offer choices of four 4.1”, two 8.0”, or two 10.1” LCD screens to monitor video.

3. **Left/Right Speakers**: Local near field audio monitoring is achieved through the use of two (left/right) speakers. The speaker behavior may be adjusted with controls in the **Sound** menu. Refer to the **Front Panel Control Operation** section of Chapter 2.

4. **Front Panel Controls**: Refer to the **Front Panel Control Operation** section of this chapter.

Rear Panel

A typical vMON Rear Panels are shown in Figures 2-4, 2-5, and 2-6. The number and type of connections on each Rear Panel may vary according to the features of each model.

Figure 2-4: *v*MON-2440-4K Rear Panel

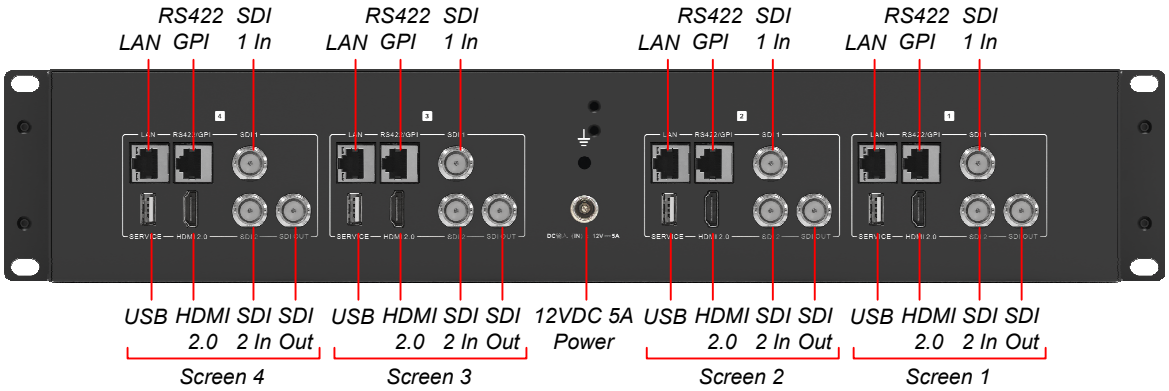


Figure 2-5: *v*MON-3280-4K Rear Panel

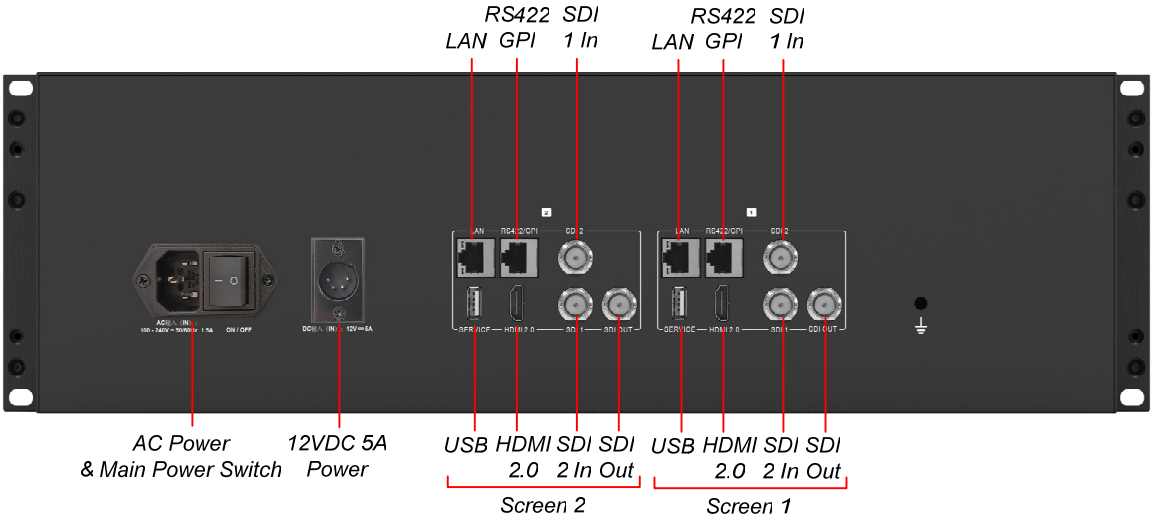
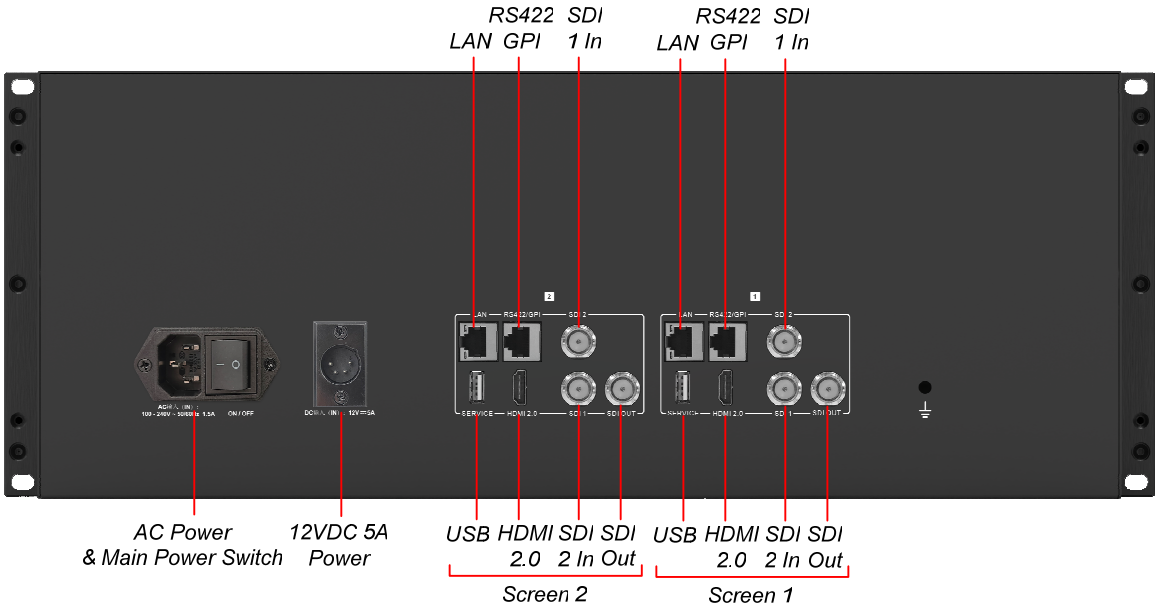


Figure 2-6: *v*MON-4210-4K Rear Panel



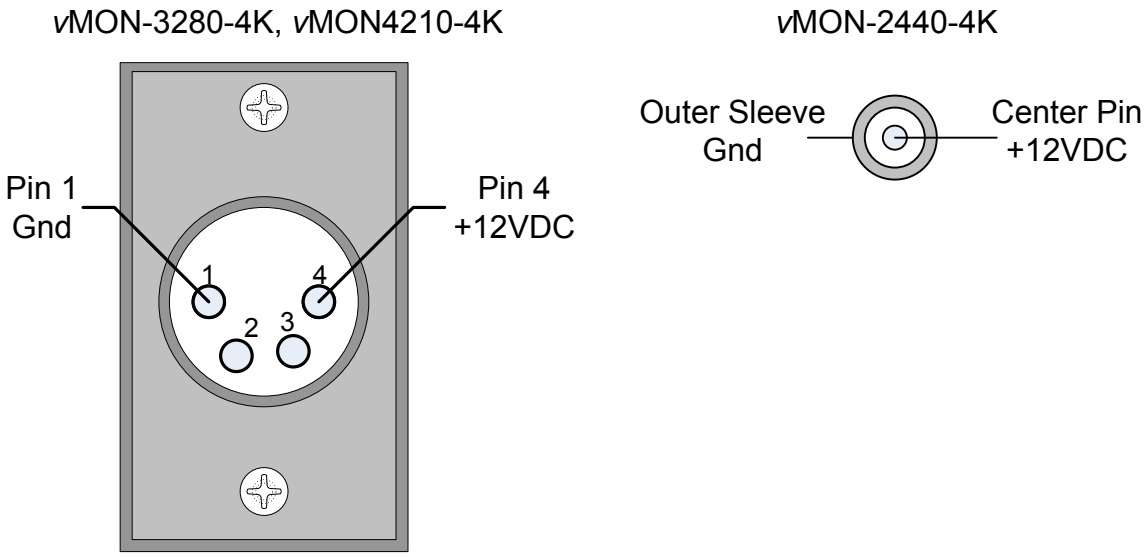
1. **AC Power & Main Power Switch**: The monitor receives power from the AC inlet, which is a standard IEC receptacle for 100 to 240 VAC ±10%, 50/60 Hz power connection, and includes a Power Switch. Normally the Power switch is kept in the "1" (On) position and the operation of each screen is controlled from the front panel controls. 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.

DC Power: On the *v*MON-3280 and *v*MON-4210-4K, this is a 4-pin XLR-M jack. A 12V battery (not supplied) or a 12VDC power supply (not supplied) can be connected to this connector for operation when not powered by the AC mains. On the *v*MON-2440-4K, the power connection is a COAX jack that connects to the supplied 12VDC power supply. The pinouts of these connectors is shown in Figure 2-7. Observe the polarity shown.

Figure 2-7: DC Power Connector Pinouts



2. **SDI 1 and SDI 2**: These connectors receive the two 12G/6G/3G/HD/SD-SDI signals to be monitored. The number of SDI input pairs will vary according to model. Refer to the Tables and Block Diagrams in Chapter 3 of this manual.

3. **SDI Out**: This connector outputs the12G/3G/HD/SD-SDI signal that is being viewed on each screen. The number of 12G/3G Out connections will vary according to model. Refer to the Tables and Block Diagrams in Chapter 3 of this manual.

4. **HDMI In**: An HDMI 2.0 input is provided for each screen. It will support a 4096x2160 60Hz (4K/60p) maximum signal.

5. **RS-422 GPI**: A RS-422 connections 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 2-8 and to the connection chart in Table 2-1.

Figure 2-8: RS-422 Jack Pinout

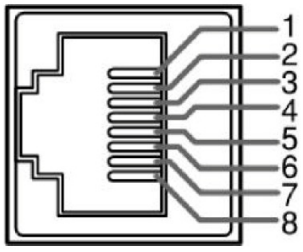


Table 2-1: RS-422 Jack Connections

Pin	Function	Description
1	GP11	Enable GP11 when low (GND). GP11 function can be set in a menu.
2	GP12	Enable GP11 when low (GND). GP11 function can be set in a menu.
3	GP13	Enable GP11 when low (GND). GP11 function can be set in a menu.
4	RX+	RS422 RX+, UMD & Tally control
5	RX-	RS422 RX-, UMD & Tally control
6	GP14	Enable GP11 when low (GND). GP11 function can be set in a menu.
7	Null	Null (No Connection)
8	GND	Ground connection

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

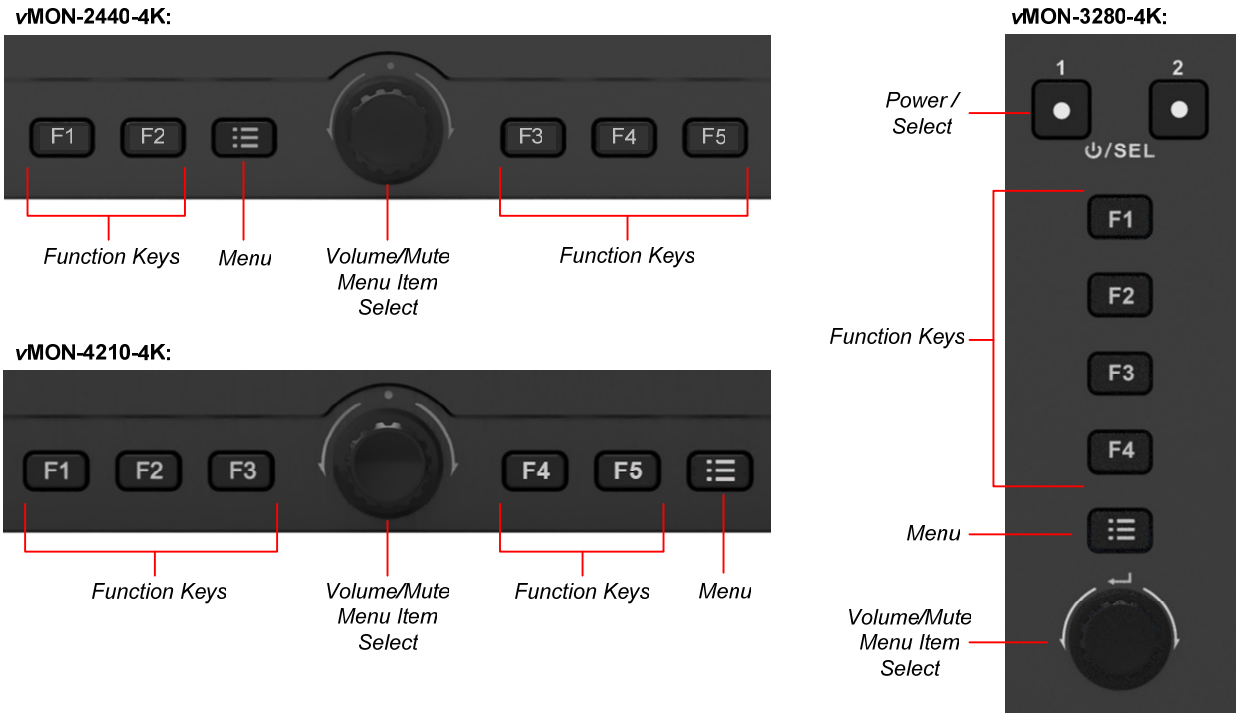
6. **LAN**: This Ethernet port can be used for color correction, upgrading, or remote network control UMD via TSL5.0. Please contact Wohler Technical Service for further information.

7. **USB**: This USB 2.0 Type A connector allows you to use a flash drive (not supplied) to perform updates to the monitor FPGA, OSD, APP EDP software, or LUT file.

Front Panel Control Operation

The location of the front panel knobs and buttons is shown in Figure 2-9.

Figure 2-9: Front Panel Controls



1. **Function Keys**: The number of **Function Keys** varies depending upon the model. These keys are programmable buttons 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.

2. **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.

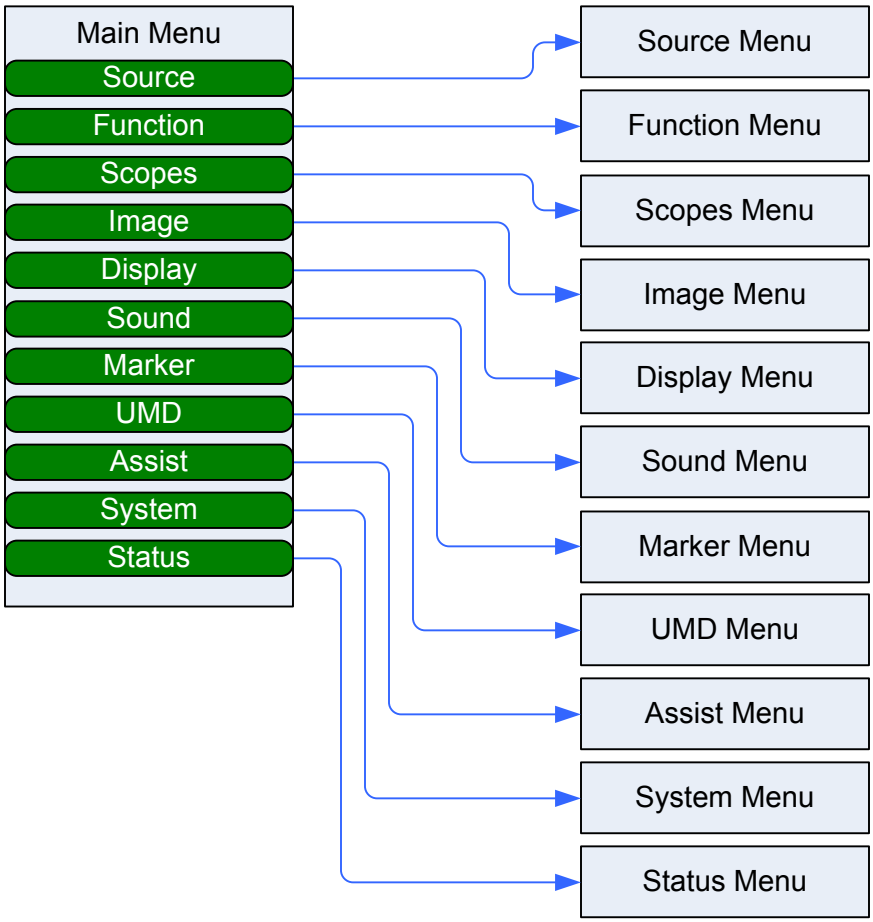
3. **Volume/Mute / Menu Item Select**: Rotate the **Volume/Mute** knob to adjust the level of the audio being heard in the speakers or in the headphone. Press the **Volume/Mute** knob to mute or unmute the audio.

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

Menus and Options

You may set most options or view a variety of system information using the self-contained menus. Figure 2-10 is a diagram of the menu arrangement, a tree showing how to reach any menu from the **Main Menu**. Hold the **Source** knob pressed for two seconds to access the **Main Menu**. Figure 2-11 shows the **Main Menu**.

Figure 2-10: Menu Tree



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 **Menu Item Select** knob to highlight the submenu of your choice. Press the **Menu Item Select** knob to enter the submenu.
2. Within the submenu, rotate the **Menu Item Select** 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 **Menu Item Select** knob to scroll through the list of available settings for that item. To select the needed setting, press the **Menu Item Select** knob. 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 **Menu Item Select** 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.

Source Menu

The first sub menu, **Source** is initially shown. It shows what signal source is connected to the screen and allows you to change it. The **Source Menu** is shown in Figure 2-11.

Figure 2-11: Main Menu / Source

The choices it contains are as follows:

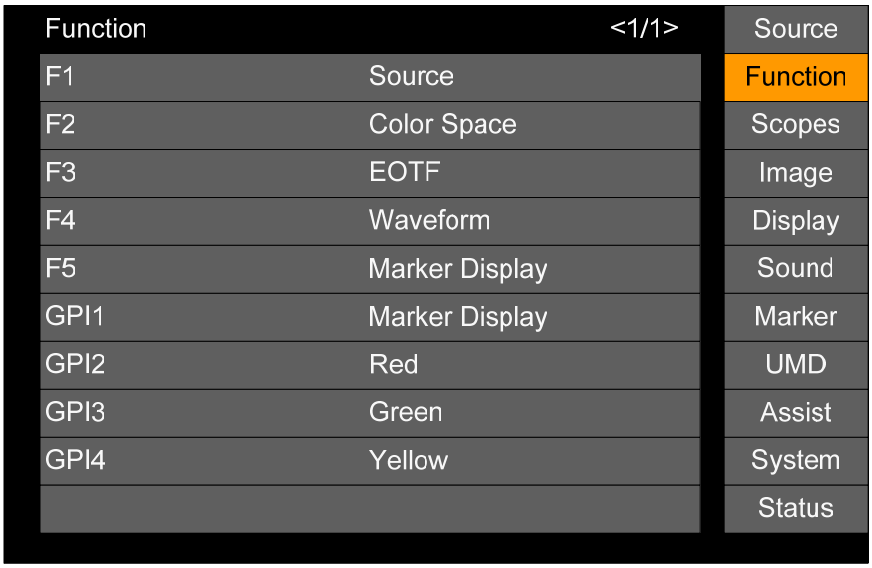
- **HDMI**: This selects the HDMI input to be monitored.
- **SDI 1**: This selects the SDI 1 input to be monitored.
- **SDI 2**: This selects the SDI 2 input to be monitored.

- **Scope Mode**: This selects scopes for display. The kind of scope to be displayed must be selected in the Scopes menu.

Function Menu

The **Function Menu** shows what each **Function** Key and **GPI** Input is assigned to perform and allows you to change it. The number of functions shown will vary, depending upon the capabilities of each model. The **Function Menu** is shown in Figure 2-12.

Figure 2-12: Main Menu / Function



The choices it contains are as follows:

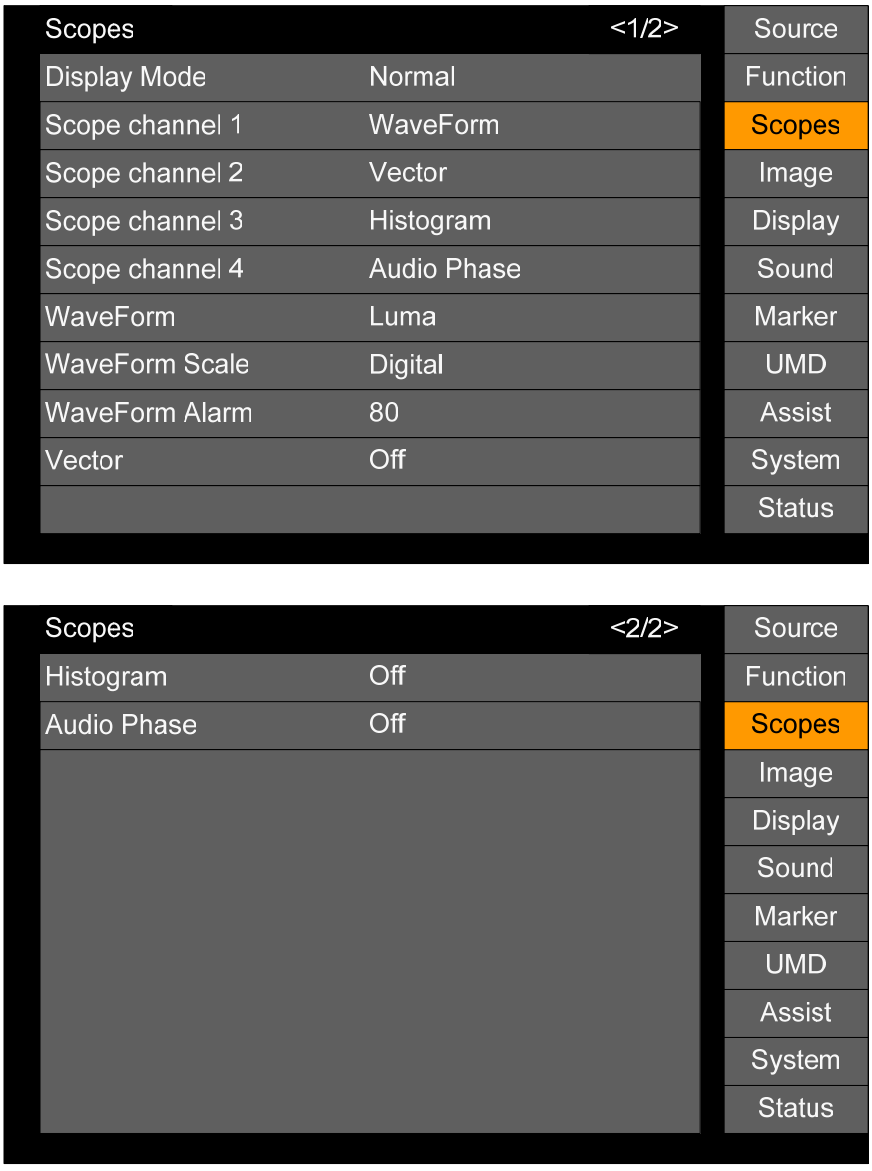
- **F1 – F5**: Each **Function** key can be programmed to perform one of the following functions:
  - Undefined: No action will take place when the **Function** key is pressed.
  - Source: Select a certain input source.
  - Color Space
  - EOTF
  - Marker Display
  - UMD Display
  - Waveform
  - Mute
- **GPI 1 – GPI 4**: Each GPI may be programmed to perform one of the following functions:
  - Undefined: No action will take place when the **GPI** is asserted.
  - Source: Select a certain input source.
  - Color Space

- EOTF
- Marker Display
- UMD Display
- Waveform
- Mute

Scopes Menu

The **Scopes Menu** shows what Scopes are set to display and allows you to change these settings. The **Scopes Menu** is shown in Figure 2-13.

Figure 2-13: Main Menu / Scopes



The choices it contains are as follows:

- **Display Mode**: This selection defines the location that the scope will appear on the screen as follows:

    - **Normal:** Scopes will display on the left bottom of the screen.
    - **Quad**: Scopes will display on one quarter of the screen.
    - **Full Screen**: Scope channel 1 will appear on the full screen.
- **Scope channels 1 - 4**: Each of the four scope channels can be set to one of the following:
    - **Off**
    - **Waveform**: The Waveform Scope includes Luma, YCbCr, and RGB.
    - **Vector**
    - **Histogram**
    - **Audio Phase**
- **WaveForm**: Select from several waveforms to monitor the luminance or chrominance of the video signal:
    - **Off**: When Off is selected the Waveform Scale and Waveform Alarm settings are invalid.
    - **Luma**
    - **YCbCr**
    - **RGB**
- **WaveForm Scale**: Set the value of the waveform alarm. The alarm will indicate on the waveform when the luminance of the video signal exceeds this value. The range is 1 – 100 and the default setting is 80.
- **Vector**: Set the scale of the Vector Scope to monitor the chrominance and saturation of the video signal. The possible settings are Off, 100%, or 75%.
- **Histogram**: The Histogram shows the overall brightness of the video signal, to evaluate the exposure of the scene. The horizontal axis shows the luminance of the image from pure black on the left edge of the graph to pure white on the right edge. The height on the vertical axis indicates the relative quantity of light for the given luminance. The histogram can indicate whether the scene is under exposed, over exposed or normal. The possible settings are Off, Luma, or RGB.
- **Audio Phase**: Display of the Audio Phase may to turned Off or On.

Image Menu

The **Image Menu** adjusts various aspects of the displayed image on the screen. The **Image Menu** is shown in Figure 2-14.

Figure 2-14: Main Menu / Image

The choices it contains are as follows:

- **Data Level**: This selection sets the legal range of the valid information of the video signal as the valid luminance range:
    - Extend (64-1019)
    - Limit (64-940)
    - Full (0-1023)
    - SMPTE Full (4-1019)
- **Color Space**: Color space is a specific organization of colors. In combination with color profiling supported by various physical devices, it supports

reproducible representations of color, whether it be an analog or a digital representation. The choices are:

  - Bypass
  - BT 709
  - EBU
  - DCI P3 D65
  - DCI P3
  - BT 2020
  - USER1
  - USER2

- **EOTF**: This is the transfer function of the input video signal to the light output of the display, to ensure that the screen reproduces the actual luminance and chrominance of the original scene. Set different EOTFs to modify the luminance, contrast and saturation of the monitor in the image display. The monitor is calibrated to the standard EOTFs to unify the image display between different screens. The settings are:

  - Off
  - 2.0
  - 2.2
  - 2.4
  - 2.6
  - 2.4 (HDR)
  - Rec.2100 HLG 1.03
  - Rec.2100 HLG 1.11
  - Rec.2100 HLG 1.16
  - Rec.2100 HLG 1.20
  - Rec.2100 HLG 1.27
  - Rec.2100 HLG 1.33
  - ST2084 PQ
  - ST2084 PQ (softroll)
  - Slog
  - Slog2
  - Slog3
  - Clog
  - Clog2
  - Clog3
  - Vlog
  - Dlog

    - LogC
- **Transfer Matrix**: The following Transfer Matrices are supported:
    - **Auto**: Automatic selection.
    - **Rec601**: The standard for SDTV for encoding and decoding of gamut transfer, definition, and frame rate.
    - **Rec709**: The corresponding standard for high definition television (HDTV).
    - **Rec2020**: The ITU-R recommendation for ultra high definition television (UHDTV).
- **DBrightness:** Set the Display Brightness os the screen. The range is 0-512 and the default value is 256.
- **Contrast:** Set the Contrast of the screen. The range is 0-4000 and the default value is 2000.
- **Saturation:** Set the intensity of the display chrominance, which describes the colorfulness of the image display. The range is 0-200 and the default value is 50.
- **Hue:** Set the hue of the screen. The range is 0-200 and the default value is 100.
- **Sharpness:** Set the contrast of the edges in the image. The range is 0-100 and the default value is 10.
- **Color Temp:** Set the white point temperature of the screen. The possible settings are:
    - 6500K
    - 9300K
    - 5500K
    - User1
    - User2
- **R-GAIN:** The Red Gain range is 0-1023 and the default value is 512.
- **G-GAIN:** The Green Gain range is 0-1023 and the default value is 512.
- **B-GAIN:** The Blue Gain range is 0-1023 and the default value is 512.
- **R-OFFSET:** The Red Offset range is 0-1023 and the default value is 512.
- **G-OFFSET:** The Green Offset range is 0-1023 and the default value is 512.
- **B-OFFSET:** The Blue Offset range is 0-1023 and the default value is 512.

Display Menu

The **Display Menu** adjusts how the screen will display the monitored video. The **Display Menu** is shown in Figure 2-15.

Figure 2-15: Main Menu / Display

The choices it contains are as follows:

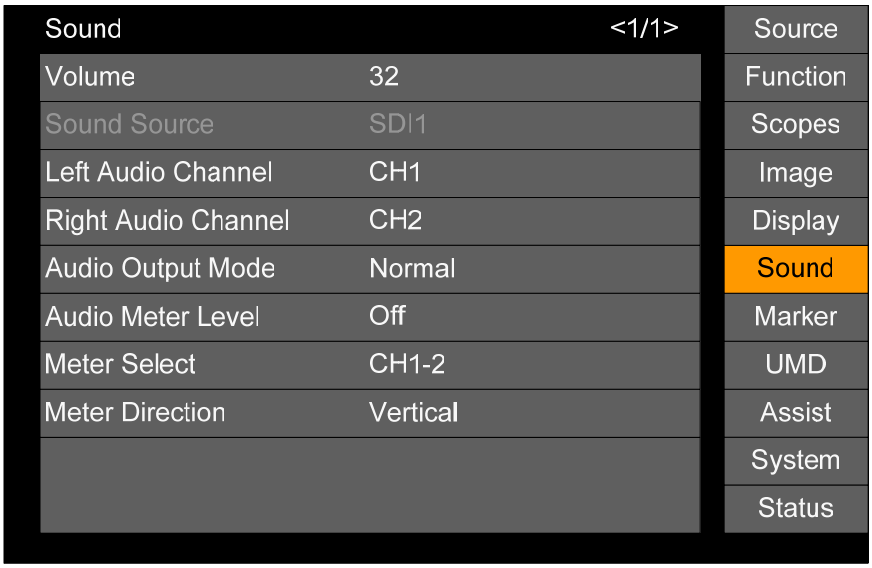
- **Backlight**: The range of LED backlight brightness is 0-100 and the default value is 32.
- **Aspect Ratio**: The Aspect Ratio sets the scale of the image display. The displayed image will cover the whole screen in Full Screen mode, but the original signal may be scaled to adapt to the screen definition. The selections are:
    - Full Screen
    - 1:1
    - Aspect Original
- **Overscan:** When Overscan is set to less than 100%, a small percentage of the outermost monitored video will not be displayed. The possible settings are:
    - 100%
    - 98%
    - 95%
    - 90%
    - 85%
    - 80%
- **Mirror:** When Mirror is turned on, the image will be flipped side to side. The possible settings are Off or On.
- **Blue Mode / Mono:** You may set either an RGB only display or a Mono display. Setting this to Off results in a normal display. The possible settings are:
    - Off

- Mono Only
- Blue Only
- Red Only
- Green Only

Sound Menu

The **Sound Menu** adjusts how the screen will display the monitored video. The **Sound Menu** is shown in Figure 2-16.

Figure 2-16: Main Menu / Sound



The choices it contains are as follows:

- **Volume**: The range of Volume is 0-100 and the default value is 32.
- **Sound Source**: This is a display only of the signal source from which the sound is being monitored.
- **Left Audio Channel**: The Left Audio Channel source may be set from CH1 to CH16.
- **Right Audio Channel**: The Right Audio Channel source may be set from CH1 to CH16.
- **Audio Output Mode**: The Audio Output Mode may be set as follows:
  - Normal
  - Right Channel MUTE
  - Left Channel MUTE
- **Audio Meter Level**: This set the manner in which the Audio Level Meters will be displayed:
  - **Off**: The Audio Level Meters will not be displayed.
  - **Opaque**: The Audio Level meters will be displayed, but video will not be displayed behind the meters.

- **Transparent**: The Audio Level meters will be displayed, and video will be displayed behind the meters.

- **Meter Select**: This sets the quantity and source of the Audio Level Meters to be displayed:
  - CH1-2
  - CH1-4
  - CH1-8
  - CH1-16
  - CH5-6
  - CH5-8
  - CH9-10
  - CH9-12
  - CH9-16
  - CH13-14
  - CH13-16
- **Meter Direction**: Audio Level Meters may be displayed either Vertically or Horizontally.

Marker Menu

The **Marker Menu** defines what markers are displayed on the screen as well as the characteristics of each marker. The **Marker Menu** is shown in Figure 2-17.

Figure 2-17: Main Menu / Marker

The choices it contains are as follows:

- **Marker Display**: This turns the display of all selected markers On or Off.
- **Aspect Marker**: The Aspect Ratio marker may be set to a variety of values:

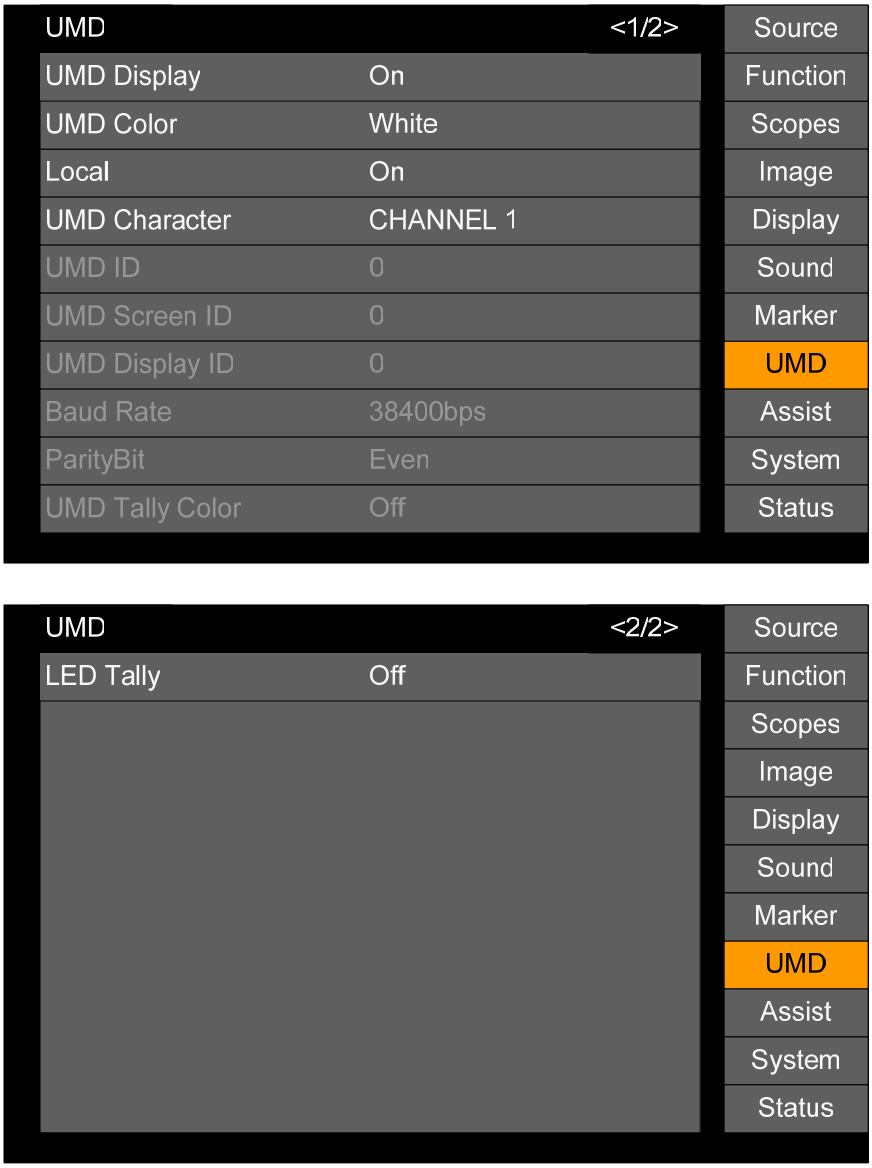
- Off
- 4:3
- 16:9
- 15:9
- 14:9
- 13:9
- 1.85:1
- 2.35:1

- **Center Marker**: The Center Marker display may be turned On or Off.
- **Safety Area**: The Safety Area Marker me be set as follows:
  - Off
  - 80%
  - 85%
  - 88%
  - 90%
  - 93%
- **Fit Marker**: The Fit Marker controls whether the aspect ratio of the Safety Area Marker will be made to fit the Aspect Marker. It may be turned On or Off.
- **Marker Mat**: The Marker Mat sets the color outside of the Aspect Marker area. It may be set as follows:
  - Off
  - Black
  - Gray
- **Marker Line**: This sets the color of the marker line when enabled. It may be set as follows:
  - White
  - Red
  - Green
  - Blue
  - Gray

UMD Menu

The **UMD Menu** defines what markers are displayed on the screen as well as the characteristics of each marker. The **UMD Menu** is shown in Figure 2-18.

Figure 2-18: Main Menu / UMD



The choices it contains are as follows:

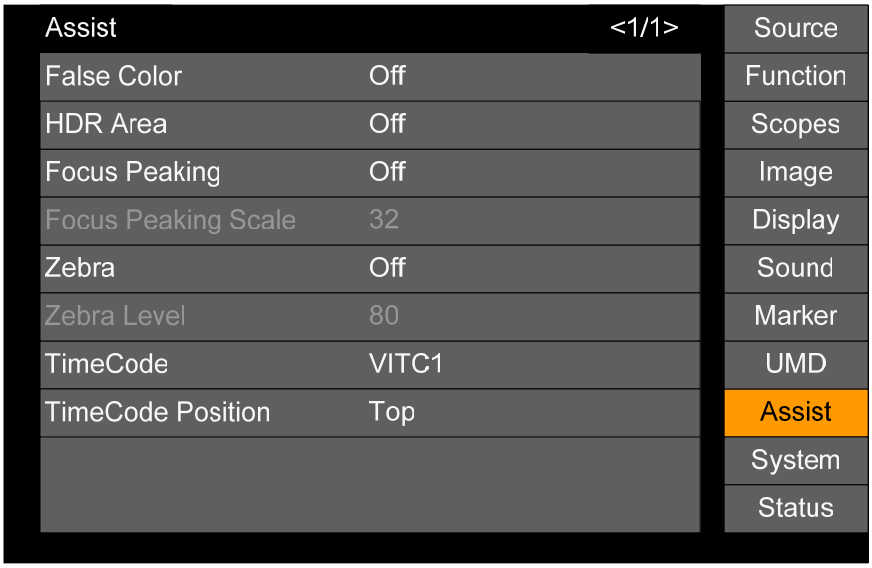
- **UMD Display**: This turns the UMD display On or Off.
- **UMD Color**: This sets the UMD color as follows:
  - White
  - Red
  - Green
  - Yellow
- **UMD Protocol**: This sets the UMD protocol as follows:
  - Local

    - TSL3.1
    - TSL4.0
    - TSL5.0
- **UMD Character**: Set the UMD protocol to Local before setting the name of the UMD display. By default this is CHANNEL1.
- **UMD ID**: Set the UMD protocol to TSL3.1 or TSL4.0 to set the UMD ID to 0-254. The default setting is 0.
- **UMD Screen ID**: Set the UMD protocol to TSL5.0 to set the UMD Screen ID to 0-254. The default setting is 0.
- **UMD Display ID**: Set the UMD protocol to TSL5.0 to set the UMD Display ID to 0-254. The default setting is 0.
- **BAUD Rate**: Set the UMD protocol to TSL3.1 or TSL4.0 to set the BAUD Rate as follows:
    - 4800bps
    - 9600bps
    - 19200bps
    - 38400bps
    - 57600bps
    - 115200bps
- **Parity Bit**: Set the UMD protocol to TSL3.1 or TSL4.0 to set the Parity Bit as follows:
    - None
    - Even
- **UMD Tally Color**: Set the UMD protocol to TSL3.1 to set the UMD Tally Color as follows:
    - Off
    - RG
    - GR
    - RGY
- **UMD Tally**: This turns the UMD Tally On or Off.

Assist Menu

The **Assist Menu** defines which functions are enabled to assist users in analyzing the monitored video. The **Assist Menu** is shown in Figure 2-19.

Figure 2-19: Main Menu / Assist



The choices it contains are as follows:

- **False Color**: This function paints different luminance values with specific colors in order to adjust the exposure of the signal and protect the highlights and shadows. It may be set as follows:
  - Off
  - Standard
  - HDR
- **HDR Area**: This will display the proportion of HDR area in the image with percentage. It may be set as follows:
  - Off
  - On
- **Focus Peaking**: This function paints a highlight around in-focus edges to find the focus point. It may be set as follows:
  - Off
  - Red
  - Green
  - Blue
- **Focus Peaking Scale**: This sets the sensitivity of Focus Peaking over a range of 1-100. The default value is 32.
- **Zebra**: This will display a stripe pattern over a specific brightness range on the image. It may be set as follows:
  - Off

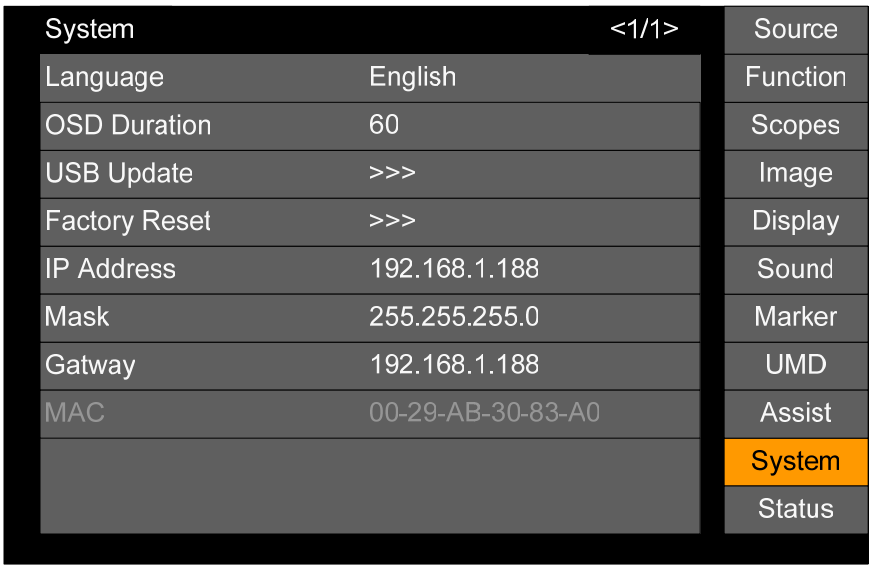
- On

- **Zebra Level**: This sets the brightness range of Zebra over a range of 1-100. The default value is 80.
- **TimeCode**: This controls the display of the Vertical Interval Time Code (VITC) or the Linear Time Code (LTC). It may be set as follows:
  - Off
  - VITC1
  - VITC2
  - LTC
- **TimeCode Position**: This sets the screen position of the TimeCode display. It may be set as follows:
  - Top
  - Bottom

System Menu

The **System Menu** lets you set certain basic parameters of the monitor and lets you reset or update it. The **System Menu** is shown in Figure 2-20.

Figure 2-20: Main Menu / System



The choices it contains are as follows:

- **Language**: This sets the OSD language. It may be set as follows:
  - English
  - Chinese
- **OSD Duration**: This sets the OSD display time. It may be set from 10 to 60 seconds.
- **USB Update**: Choose a method to use when updating this product. Please contact Wohler Technical Service for further information. The choices are:

- Cancel
- Mstar Update
- FPGA Update
- LUT3DL Update
- LUTCUBE Update
- LUTDAV Update

- **Factory Reset**: This resets all of the settings to what they were initially when it left the factory. The choices are:
  - Cancel
  - Factory Reset
- **IP Address**: This setting is used to set the IP address. The default is: 192.168.1.188.
- **Mask**: This setting is used to set the IP mask. The default is: 255.255.255.0.
- **Gateway**: This setting is used to set the IP gateway. The default is: 192.168.1.188.
- **MAC**: This is a display of the physical address: 00-29-AB-30-83-A0.

Status Menu

The **Status Menu** is a read only display of various settings in the monitor. The **Status Menu** is shown in Figure 2-21.

Figure 2-21: Main Menu / Status

The information it contains is as follows:

- **Input Format**: A display of the current input source format:
- **PayLoad ID**: A display of the current input source PayLoad ID.
- **SMPTE**: A display of the current input source SMPTE protocol.

- **Color Space**: A display of the current color space.
- **Color Temp**: A display of the current color temperature.
- **EOTF**: A display of the current EOTF.
- **IP Address**: A display of the current monitor IP address.
- **MCU Version**: A display of the current MCU version.
- **DSP Version**: A display of the current DSP version.
- **DSP ID**: A display of the current DSP ID.

Factory Reset

You may reset the monitor to its original factory settings. You may choose to do this when the following situations occur:

- The monitor parameters are adjusted incorrectly in some way and you would like to just set all of them back to where the monitor is operating in a known way.
- The monitor picture or sound is abnormal and this is not due to a hardware problem.

To perform a factory reset, follow these steps:

1. Momentarily press a **Power/SEL** button, and then press the **MENU** button to enter the Main Menu.
2. Rotate the knob to **System**. Press the knob.
3. Rotate the knob to **Factory Reset**. Press the knob.
4. Rotate the knob to **Factory Reset** in the submenu which appears. Press the knob.
5. Select **YES** in the popup menu. The screen displays, "Restore is processing."
6. When the factory reset is complete, the display will refresh.

CHAPTER 3: Technical Info

Table 3–1: *v*MON-2440-4K Specifications

Specification	Values/Domains
Power Requirements	100 VAC to 240 VAC ± 10%, 50/60Hz or 12 VDC
Power Consumption	42 Watts
Dimensions (H x W x D)	4” x 19” x 8” (102mm x 483mm x 203mm), standard 19” rack mounting
Rack	2RU
Shipping/Net Weight	11 lbs (5.0 kg) / 7 lbs (3.2 kg)
Supplied Accessories	12V 4A DC Power Supply, AC Power Cord
Display Type	4.1" diagonal x 4 screens 89mm (H) x 51mm (V)
Aspect Ratio	16:9
Screen Resolution	1280H x 720V
Luminance / Contrast	450 cd/m^2 / 1000:1
Audio Meter Channels	2-16 per screen
Color Depth	16.7 million
Backlight	LED
Video Inputs	12 channels: • 2 x BNC 12G-SDI per screen • 1 x HDMI 2.0 per screen
Video Outputs	1 x BNC selected 12G-SDI per screen
Audio Output	• 1 x 3.5mm stereo headset jack per screen • Stereo Speakers, 2.5W x 2

Table 3–2: *v*MON-3240-4K Specifications

Specification	Values/Domains
Power Requirements	100 VAC to 240 VAC ± 10%, 50/60Hz or 12 VDC
Power Consumption	35 Watts
Dimensions (H x W x D)	6” x 19” x 7” (152mm x 483mm x 178 mm), standard 19” rack mounting
Rack	3RU
Shipping/Net Weight	13 lbs (5.9 kg) / 9 lbs (4.1 kg)
Supplied Accessories	AC Power Cord
Display Type	8.0" diagonal x 2 Screens 172mm (H) x 102mm (V)
Aspect Ratio	16:10
Screen Resolution	1920H x 1200V
Luminance / Contrast	290 cd/m^2 / 900:1
Audio Meter Channels	2-16 per screen
Color Depth	16.7M
Backlight	LED
Video Inputs	6 channels from: • 2 x BNC 12G-SDI per screen • 1 x HDMI 2.0 per screen
Video Outputs	1 x BNC selected 12G-SDI per screen
Audio Output	• 1 x 3.5mm stereo headset jack per screen • Stereo Speakers, 2.5W x 2

Table 3–3: *v*MON-4210-4K Specifications

Specification	Values/Domains
Power Requirements	100 VAC to 240 VAC ± 10%, 50/60Hz or 12 VDC
Power Consumption	37 Watts
Dimensions (H x W x D)	8” x 19” x 7” (203mm x 483mm x 178 mm), standard 19” rack mounting
Rack	4RU
Shipping/Net Weight	14 lbs (6.4 kg) / 10 lbs (4.5 kg)
Supplied Accessories	AC Power Cord
Display Type	10.1" diagonal, 2 Screens; 216mm (H) x 153mm (V)
Aspect Ratio	16:10
Screen Resolution	1920H x 1200V
Luminance / Contrast	450 cd/m^2 / 1000:1
Audio Meter Channels	2-16 per screen
Color Depth	16.7M
Backlight	LED
Video Inputs	6 channels from: • 2 x BNC 12G-SDI per screen • 1 x HDMI 2.0 per screen
Video Outputs	1 x BNC selected 12G-SDI per screen
Audio Output	• 1 x 3.5mm stereo headset jack per screen • Stereo Speakers, 2.5W x 2

Table 3–4: *v*MON 4K In-Rack Series Options

Option	Part #	Description
OPT-CC	829194	Adds Closed Caption support

Figure 3–1: *v*MON-2440-4K Block Diagram

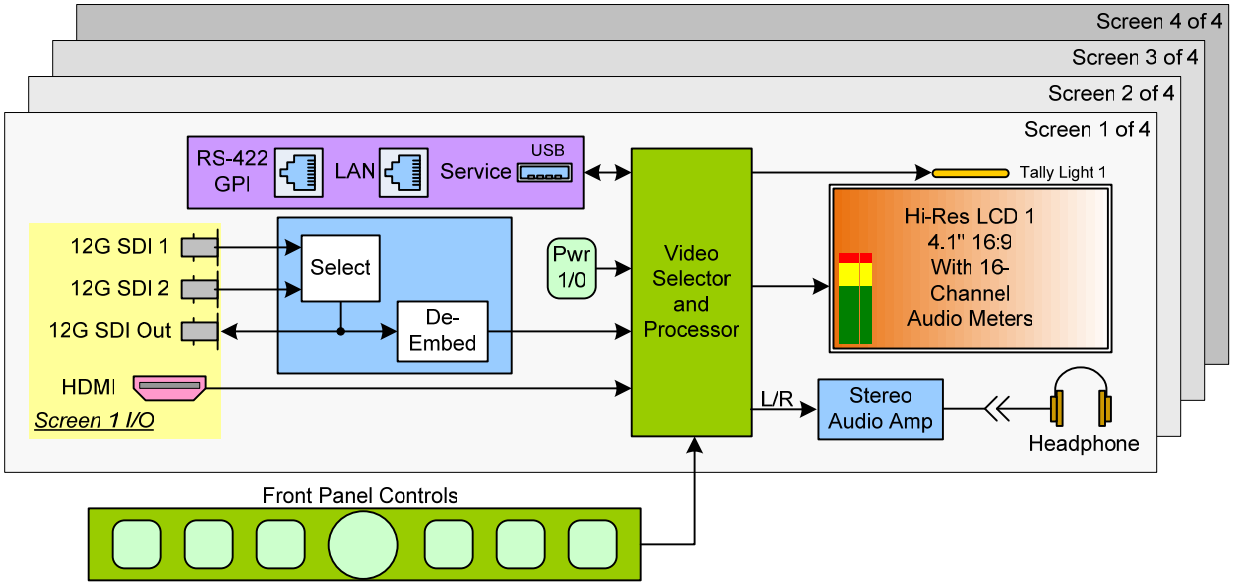


Figure 3–2: *v*MON-3280-4K Block Diagram

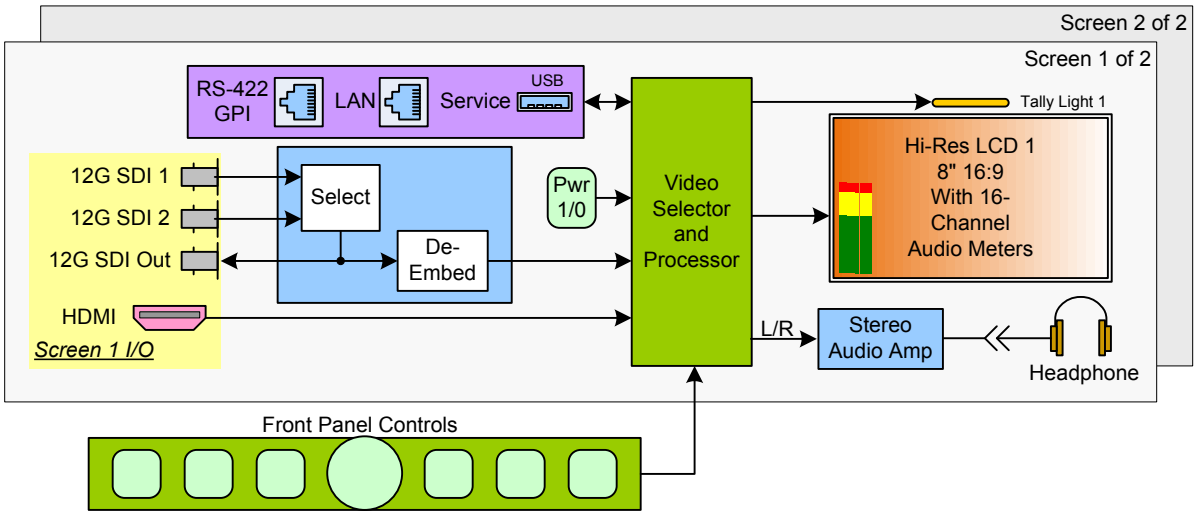


Figure 3–3: *v*MON-4210-4K Block Diagram