HDM-320-4K-TT

**32" UltraHD Video Tabletop Monitor
User Guide**

User Guide

Part Number 821823, Revision A

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Introduction

Overview

The HDM-320-4K-TT monitor sets a new standard in UltraHD LCD monitors for broadcast and professional video applications. It provides a 32", 3840 x 2160 resolution, 16:9 format, 60Hz refresh, anti-glare IPS LCD screen. All video formats are scaled to fit on the screen in the highest quality using 12-bit digital processing, precision scaling and gamma correction to produce the best images possible.

Features

The HDM-320-4K-TT audio/video monitor is designed for confidence monitoring of four 3G/HD/SD-SDI inputs. 2SI Interleave or Quad-Link 4K video can be monitored using the four HD-SDI inputs together. Input signals are easily selected and displayed. Two to sixteen audio channels may be selected for visual monitoring on bar graph style level meters. On screen marker displays can be enabled on this full-featured monitor. Stereo speakers provide audio monitoring. A headphone jack is also provided for external audio monitoring.

Parameters are selected and adjusted using an On Screen Display (OSD) Menu. Monitor management settings can also be made with a web browser over Ethernet using the integral web server. The monitor can contain up to four user definable configurations which can easily be recalled whenever necessary.

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, this monitor will only plug into a three-prong outlet for your safety. If the plug does not fit into the outlet, contact an electrician to replace the obsolete outlet.

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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

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

The HDM-320-4K-TT is designed to be placed on a tabletop or other flat surface. Position either unit at ear/eye level for best high frequency response and visual observation of the display screen. Please adhere to the following clearances:

Table 1-1: Recommended Clearances

Clearance	Surface
24"	Front
3"	Rear
2"	Sides
1.75"	Top and Bottom (if near other equipment)
0"	Top and Bottom (if no other equipment)

Heat Dissipation

The ambient temperature near the product should not exceed 40° Celsius (104° Fahrenheit). When rack mounting, adjacent devices can be rack mounted in proximity to the unit if this temperature is not exceeded. Otherwise, allow a 1RU (1.75"/44.45mm) space above and below the unit for air circulation. For table top operation, in warm environments, allow an inch of space above and below the unit for air circulation.

Important
> To reduce noise, the monitor does not have any fans. As a result, the heat generated by the audio amplifiers, power supplies, and other components is vented by slots in the back of the unit. Therefore, as a safety precaution, you must allow proper ventilation on these surfaces.

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.

Mechanical

The sturdy chassis is very shallow from front to back making it very stable on its table stand. It can be tilted forward or backward for viewing, if necessary. The weight of internal components is distributed fairly evenly around the unit.

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; however, satisfactory results can sometimes be obtained without it. The internal circuitry ground is connected to the chassis.

Power

The unit connects to an AC mains power source (44W, 100 to 240 VAC, ±10%, 50/60Hz) with a supplied power cord using the IEC connector provided on the unit.

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 the user 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

The controls, indicators, and connections on the HDM-320-4K-TT front and rear panels are described in this chapter.

Front Panel

Figure 2–1: Front Panel Layout

1. **LCD Screen**: The LCD screen displays the audio meters, menus, and OSD features over the video.

2. **Power**: The **Power** button turns the LCD screen to On or Standby mode. The adjacent **Power Indicator** glows green to indicate On and red to indicate Standby.

3. **Input**: The **Input** button selects the video/audio input to be monitored from the various connectors on the rear panel. The currently selected input source is indicated when the **Input** button is pressed. Repeated presses change the input source. Either 2SI 4-Way Interleave or Quad Division Square input formats can be selected for 4K video monitoring. Refer to Table 2-6.

4. **Function Keys**: Press **F1**, **F2**, **F3**, or **F4** to activate the assigned function. The default assignments are as listed in Table 2-1. The action of each **Function Key** can be selected from a wide variety of actions in the User Config Menu as described in Table 2-8.

Table 2-1: Default Function Key Actions

Key	Default Action
F1	Color Comparison
F2	Scan
F3	Aspect
F4	Blue Only

5. **OK**: Press this button to display the OSD Menu. When the OSD Menu is displayed, pressing this button accepts selections in the menus and sub-menus. Refer to the **OSD Menus** section of this chapter for operation and content of these menus.

6. **Left**: When the OSD Menu is not being displayed, pressing this button displays the Quick Menu, and cycles through frequently used volume and image controls. Refer to the **Quick Menu** section of this chapter. When the OSD Menu is displayed, the **Left** button navigates horizontally through the sub-menu selections.

7. **Down**: When the OSD Menu is displayed, the **Down** button navigates down through the menu and sub-menu selections and can be used to adjust the settings. It also adjusts the items in the Quick Menu.

8. **Up**: When the OSD Menu is displayed, the **Up** button navigates down through the menu and sub-menu selections and can be used to adjust the settings. It also adjusts the items in the Quick Menu.

9. **Right**: When the OSD Menu is displayed, the **Right** button navigates horizontally through the sub-menu selections.

10. **Spkr**: These are the locations of the left and right speakers.

11. **Headphone**: An 1/8" jack for a stereo headphone appears on the front panel. A headphone is not supplied.

On-Screen Display Features

Functions and parameters can be selected and adjusted using the On Screen Display (OSD) Menu. Refer to the **OSD Menus** section of this chapter.

Overlays can be added by the operator for **Area & Safety Markers**, **Center Marker**, and to display names as **IMD** (**I**n **M**onitor **D**isplay) for identification.

Video effects such as **Monochrome**, **Blue Only**, and other features can be used to assist setup. For convenience and quicker access, these and other features can be assigned to the **Function Keys**.

Audio level meter displays, for up to sixteen channels, can be displayed at the left or right sides of the display. They can show VU, PPM (PK) or both and have assignable -20db or -18db reference levels.

The de-embedded **Timecode** from the HD/SD-SDI source displays on the lower part of the screen.

Figure 2-2: Display Features
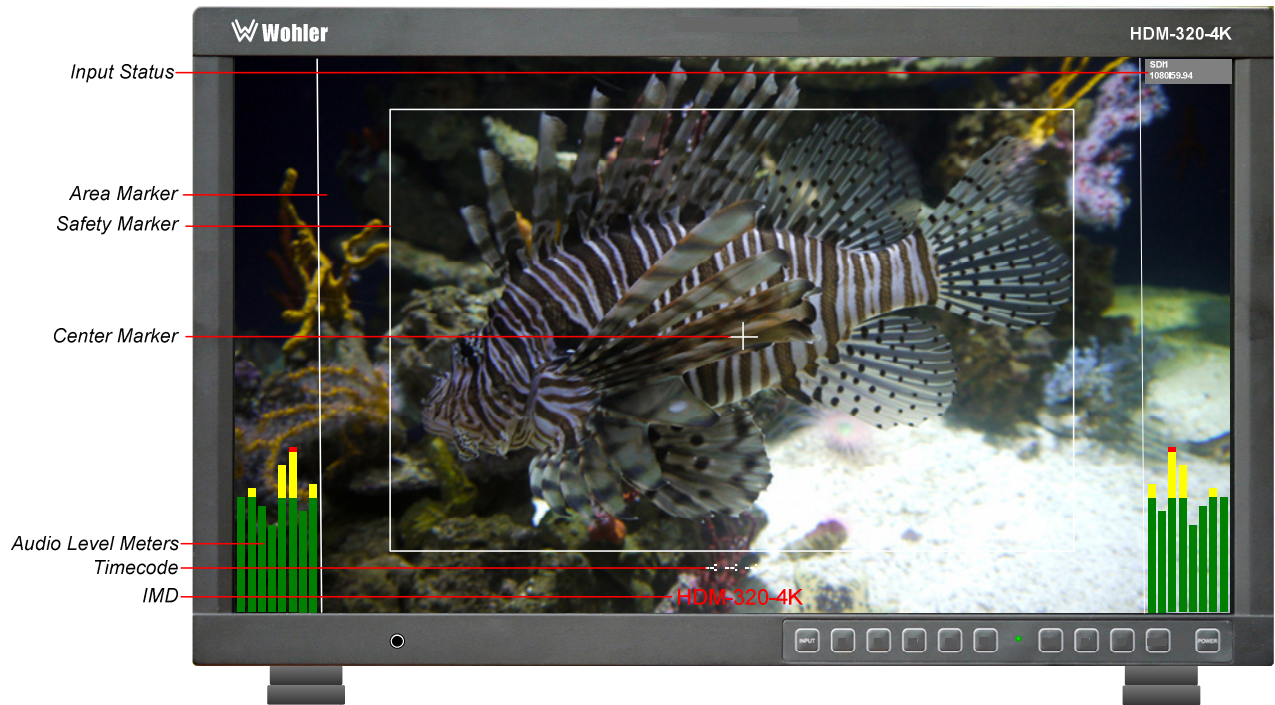
1. **Input Status**: Displays the detected input and video parameters of the signal: vertical active line count, (i)nterlaced or (p)rogressive, and field/frame rate in Hz.
2. **Area Marker**: Used to mark an alternate aspect ratio area of the image. You can set whether to display it, the brightness, and the matte mode in the User Config Menu. Refer to Table 2-8.
3. **Safety Marker**: This is used to mark a percentage area, inside of the image, safe for titles to be located. You can set whether to display it, as well as its display mode, in the User Config Menu. Refer to Table 2-8.
4. **Center marker**: Cross hairs are displayed in the center of the screen, marking the center of the image. You can set whether to display them in the User Config Menu. Refer to Table 2-8.
5. **IMD**: The IMD Menu provides settings to customize the IMD (In Monitor Display) text area to show a static line of characters, numbers, and certain symbols or to receive dynamic messages to be displayed. Refer to Table 2-9.
6. **Audio Level Meters**: Levels for the audio channels are displayed on up to sixteen bar graph meters as left/right pairs. The meters can appear in selectable positions on the screen. Refer to Table 2-8.
7. **Timecode**: The de-embedded timecode from the HD/SD-SDI source displays on the lower part of the screen.

Rear Panel

Figure 2-3: Rear Panel Layout

SDI 1
SDI 2
SDI 3
SDI 4

RS485
In/Out

Ethernet

DC
Power

Power
Switch

AC
Power
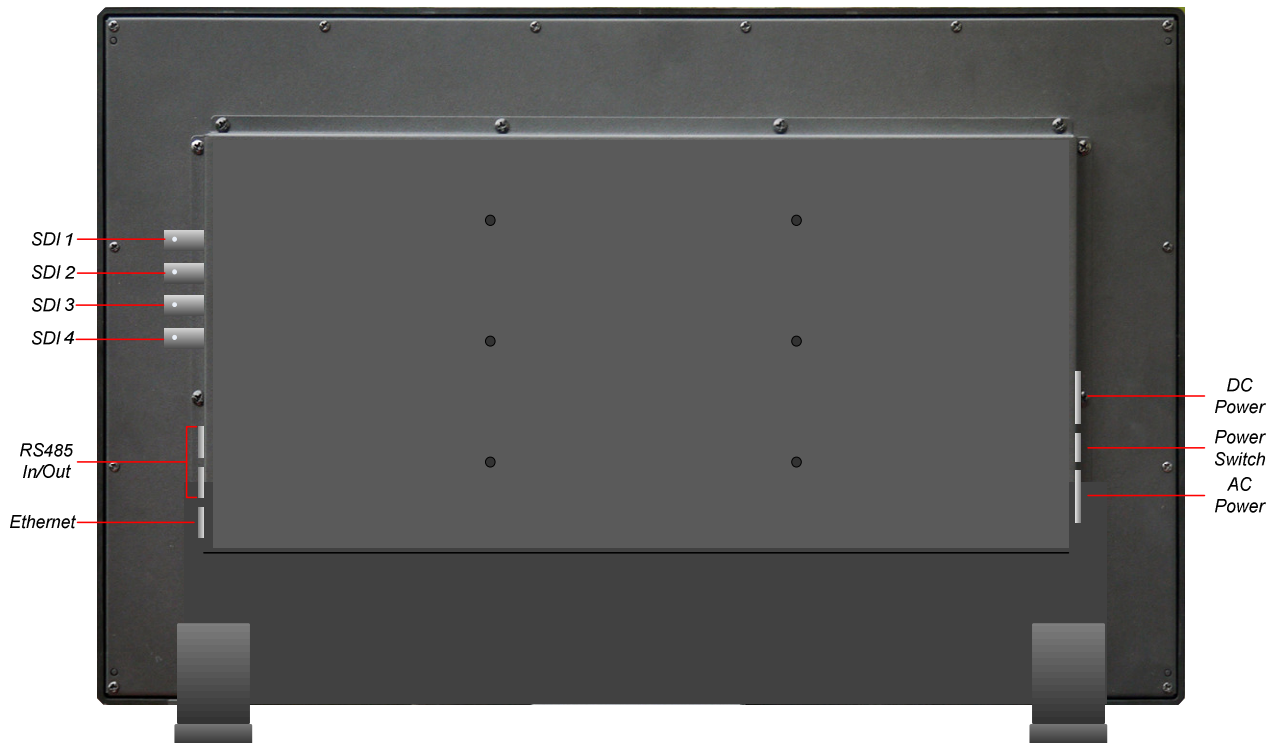
Important:
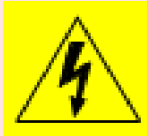
By design, the supplied AC mains power cord will only plug into a three-prong grounded outlet for your safety. If the plug does not fit into the outlet, contact an electrician to replace the obsolete outlet. The symbol to the left warns of electric shock hazard inside or outside the unit. Disconnect the power cord before removing access panels.

Important:

The monitor and power adapter have been tested as a combined apparatus to verify compliance with applicable safety and electromagnetic compliance standards. Use of another power adapter provided by the user may negate the compliance or not perform properly. Wohler Technologies cannot accept any responsibility for the outcome in such cases.

1. **SDI 1 In**: This input connector accepts 3G/HD/SD-SDI video signals. It is compliant with SMPTE 424M, SMPTE 259M, SMPTE292M/ITU-R BT601. It can be viewed using the SDI1 selection on the **Input** button menu.

2. **SDI 2 In**: This is the second 3G/HD/SD-SDI video signal input. This connection is compliant with SMPTE 424M, SMPTE 259M, SMPTE292M/ITU-R BT601. It can be viewed using the SDI2 selection on the **Input** button menu.

3. **SDI 3 In**: This is the third 3G/HD/SD-SDI video signal input. This connection is compliant with SMPTE 424M, SMPTE 259M, SMPTE292M/ITU-R BT601. It can be viewed using the SDI3 selection on the **Input** button menu.

4. **SDI 4 In**: This is the fourth 3G/HD/SD-SDI video signal input. This connection is compliant with SMPTE 424M, SMPTE 259M, SMPTE292M/ITU-R BT601. It can be viewed using the SDI4 selection on the **Input** button menu.

5. **RS-485 In/Out**: These RJ-45 jacks are used for dynamic Tally/IMD controls. Two jacks are provided for in & out daisy chain arrangements. They are wired identically. Refer to Figure 2-4 below for the pinout and to Table 2-3 for terminal connections. These connections are also used for system software upgrades. Either CAT5 or CAT6 cables may be used for these jacks.

6. **Ethernet**: The 10/100M Ethernet connector is used to connect with a computer to modify the display settings remotely. CAT5 network cables are recommended for medium distances. CAT6 twisted pair shielded cables are recommended for longer distances.

7. **DC Power Connector**: 14 to 19VDC at 3A power supply connects to this XLR connector to power the monitor when AC power is not available.

8. **Power Switch**: This switch removes all power from the product. Normally, since this switch is on the rear panel, it is left in the **1 (On)** position and the front panel **Power** button is used to start and stop product operation.

9. **AC Power Connector**: The supplied 100 to 240VAC power cord connects to this IEC connector.

Rear Panel Connectors

The following figure and table details the connections of the RS-485 connectors on the rear panel. The table is also silkscreened on the rear panel of the unit for your convenience.

Figure 2-4: RS-485 I/O Pin-Out
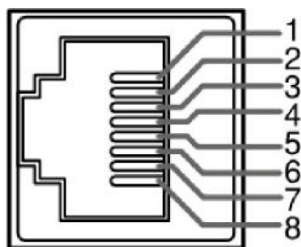
Table 2-3: RS-485 I/O Connections

Pin	RS-485 Terminal Name
1, 2	GND
3	Tx- (pair A)
4	Rx+ (pair B)
5	Rx- (pair B)
6	Tx+ (pair A)
7, 8	NC

Using the Quick Menu and the OSD Menus

In the following descriptions, refer to Figure 2-5 for the location of each control button.

Figure 2-5: Screen Control Buttons

Input   Left   Down   OK   Up   Right   Function Keys   Power
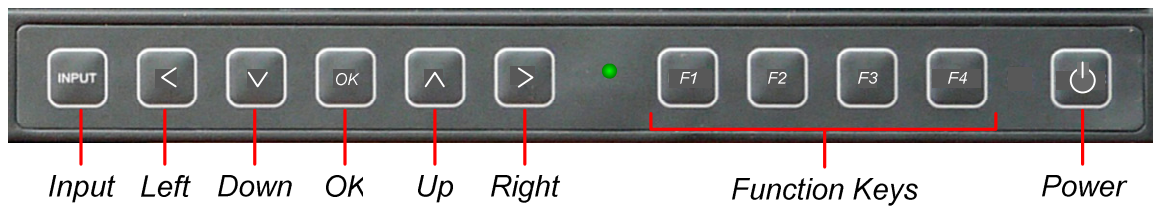
Quick Menu

The Quick Menu provides quick access to a few commonly used features, as listed in Table 2-4. The Quick Menu appears as shown in Figure 2-6.

Figure 2-6: Quick Menu - Volume Setting

Volume   ⬤◯◯◯◯◯◯◯   16

The following is a description of how to use the Quick Menu:

1. Press the **Left** button to display the Quick Menu and the first item that can be adjusted.

2. Use the **Up** and **Down** buttons to change the value for the item displayed.

3. Press the **Left** button again to display the next adjustable item.

4. The Quick Menu will time out with no button presses. Alternatively, you may press the **Left** button repeatedly when finished until the menu disappears.

Parameters	Default Value	Domain Range
VOLUME	16	0 - 31
BRIGHTNESS	50	0 - 100
CONTRAST	50	0 - 100
INTENSITY	50	0 - 100
APERTURE	0	0 - 63

OSD Menus

The OSD Menus allow you to adjust a wide variety of control parameters for the monitor. Refer to Table 2-5 through Table 2-10 for typical values and domain ranges. The following is a description of how to use the OSD Menus:

1. Press the **Menu** button to display the Main Menu.

2. Use the **Up** and **Down** buttons to navigate through the submenus.

3. Press the **Enter** button to enter the parameter selections in the chosen submenu.

4. Use the **Up** or **Down** buttons to cycle through the submenu selections.

5. When the desired option is highlighted, press the **Enter** button to select it.

6. Use the **Up** or **Down** buttons to adjust the parameter value up or down, make a selection, or turn a function on or off.

7. Press the **Enter** button to accept your parameter change -or- press the **Menu** button to cancel your change.

8. Press the **Menu** button to back out of any submenu, and finally to remove the OSD Menus from the screen.

OSD Menus

The following tables describe the information and settings available in the OSD Menu system. Use the instructions in the previous section to navigate the menus.

Table 2-5: Status Menu Structure

Status			
Parameters	**Default Value**	**Domain Range**	**Description**
INPUT	SDI-1	SDI-1 SDI-2 SDI-3 SDI-4	Selected input
SIGNAL FORMAT	NO SIGNAL		Input signal format
COLOR RANGE	64~940		Current color range
YCbCr COLOR MATRIX	ITU-R BT.709		Current color matrix
COLOR TEMP	D65	D93 D65 D61 D55 DCI DCI XYZ USER1 USER2	Current color temperature
COLOR SPACE	ITU601		Current color space
EOTF	2.2		Show EOTF
Menu Page 2			
USER PRESET	USER1	USER1 USER2 USER3 USER4	Current user preset
MODEL	HDM-320-3G-TT		
SERIAL NUMBER			
SOFTWARE VERSION			

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Table 2-6: Input Menu Structure

Input Config			
Parameters	**Default Value**	**Domain Range**	**Description**
SDI 1	ON	OFF, ON	Enables or disables the input choices available in the Input Select Menu
SDI 2	OFF	OFF, ON	
SDI 3	OFF	OFF, ON	
SDI 4	OFF	OFF, ON	
IMAGE DIVISION	2SI	2SI QUAD DIVISION	When using QUAD LINK signal format: 2SI displays a 4K interleaved signal using all four 3G/HD/SD/SDI inputs. QUAD DIVISION combines 4 images into a 4K image using all four 3G/HD/SD-SDI inputs.
SIGNAL FORMAT	AUTO	AUTO 4:2:2 YCbCr 10 BIT 4:2:2 YCbCr 12 BIT 4:4:4 YCbCr 10 BIT 4:4:4 YCbCr 12 BIT 4:4:4 RGB 10 BIT 4:4:4 RGB 12 BIT 4:4:4 XYZ 10 BIT 4:4:4 XYZ 12 BIT	Input signal format
Menu Page 2			
COLOR RANGE	64 - 940	64 - 940 64 - 1023 0 - 1023	Set color range
YCbCr COLOR MATRIX	AUTO	AUTO ITU-R BT.709 ITU-R BT.2020	Set YCbCr color matrix

Table 2-7: Color Temp Menu Structure

Color Temp			
Parameters	**Default Value**	**Domain Range**	**Description**
COLOR TEMP	D65	D93 D65 D61 D55 DCI DCI XYZ USER1 USER2	Set the color temperature.
RED GAIN GREEN GAIN BLUE GAIN	512	0 to 512	Set the gain and offset for each color. Available only when COLOR TEMP is set to USER1 or USER2.
RED BIAS GREEN BIAS BLUE BIAS	0	-100 to +100	
COPY FROM	D65	D93 D65 D61 D55 DCI DCI XYZ	Copies this set of color parameters to USER.
RESET	Resets Gain and Offset to Factory Default		
Menu Page 2			
FIRST COLOR SPACE	EBU	NATIVE SMPTE-C EBU ITU709 ITU2020 P3 S-GAMUT/S-GAMUT3 S-GAMUT3.CINE	Set the color space for the first channel
FIRST EOTF	2.2	1.8, 2.2, 2.4, 2.6, 2.8 BT.1886 HLG S-LOG2 S-LOG3 SMPTE ST.2084	Set the gamma/EOTF for the first channel
FIRST HDR RANGE	---	**EOTF** / **HDR** HLG / 100-1200 S-LOG2 / 100-1500 S-LOG3 / 100-3800 SMPTE ST.2064 / 100-10000	Set the HDR range for the first channel. Only available for EOTF (HDR)

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COLOR COMPARISON*	OFF	OFF ON			Enable / Disable color comparison of the two channels
SECOND COLOR SPACE	EBU	NATIVE SMPTE-C EBU ITU709 ITU2020 P3 S-GAMUT/S-GAMUT3 S-GAMUT3.CINE			Set the color space of the second channel
SECOND EOTF	2.2	1.8, 2.2, 2.4, 2.6, 2.8 BT.1886 HLG S-LOG2 S-LOG3 SMPTE ST.2084			Set the gamma/EOTF for the second channel
SECOND HDR RANGE	---	**EOTF**	**HDR**		Set the HDR range for the second channel. Only available for EOTF (HDR)
		HLG	100-1200		
		S-LOG2	100-1500		
		S-LOG3	100-3800		
		SMPTE ST.2064	100-10000		

* When **COLOR COMPARISON** is set to ON, the video effects of the values set in the First and Second settings will be shown on the left and right halves of the screen. The First settings will affect the video on the left side of the screen and the Second settings will affect the video on the right side of the screen.

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Table 2-8: User Config Menu Structure

User Config			
Parameters	**Default Value**	**Domain Range**	**Description**
USER PRESET	USER1	USER1 USER2 USER3 USER4	Select a USER PRESET
F1	COLOR COMPARISON	COLOR COMPARISON LUT SWAP BLUE ONLY MONO MARKER AUDIO METER TIMECODE SCAN NATIVE ASPECT MUTE IMD DISPLAY UNDEF (none)	Set up the F1 Function key action.
F2	SCAN		Set up the F2 Function key action.
F3	ASPECT		Set up the F3 Function key action.
F4	BLUE ONLY		Set up the F4 Function key action.
Menu Page 2			
AUDIO	EBD	EBD: EMBEDDED SIGNAL EXT: EXTERNAL SIGNAL OFF: NO SIGNAL	
SPEAK OUT L	EBD CH1	WHEN AUDIO SOURCE IS EBD, THE RANGE IS EBD CH1 - CH16	Select the audio channel to be routed to the left speaker
SPEAK OUT R	EBD CH2	WHEN AUDIO SOURCE IS EBD, THE RANGE IS EBD CH1 - CH16	Select the audio channel to be routed to the right speaker
AUDIO METER	OFF	OFF ON	Set whether to display audio meters

METER SELECT	CH 1-2	CH 1-2 G1 G2 G3 G4 G1 + G2 G1 + G3 G1 + G4 G2 + G3 G2 + G4 G3 + G4 G1-G4	Select channels or groups to be metered on the video screen
METER POSITION	LEFT	LEFT RIGHT	Select screen position of meters
TRANS-PARENCY	0	0 = 100% 1 = 75% 2 = 50% 3 = 25%	Set meter appearance
REF LEVEL	-20dB	-20dB -18dB	Set meter reference level
OVER LEVEL	-10dB	-10dB -8dB -6dB -4dB -2dB	Set meter overload level
Menu Page 3			
MARKER	OFF	OFF ON	Turn **all markers** ON or OFF
ASPECT MARKER	OFF	16:9 4:3 15:9 14:9 13:9 1.85:1 2.35:1 VARIABLE OFF	Set aspect ratio marker
VARIABLE ASPECT	3.00	1.00 - 3.00 IN .01 STEPS	When the Aspect Marker is set to Variable, set the ratio here
CENTER MARKER	OFF	OFF ON	Set whether center marker displays

SAFETY MARKER	OFF	OFF 80% 85% 88% 90% 93% 95%		Set safety area size according to aspect ratio and scan mode
MARKER LEVEL	1	1 = 50% 2 = 75% 3 = 100%		Set the luminance of all markers
MARKER MAT	OFF	OFF HALF BLACK	Refer to Figure 2-7	Set Marker Mat effect
MARKER FIT	OFF	OFF: Safety Marker based on current input source ON: Safety Marker based on image within current aspect marker		Set Safety Marker source
CROSS HATCH	OFF	OFF ON		Set whether to show the cross hatch
Menu Page 4				
BACKLIGHT*	15	0 - 30		Set Backlight brightness
INTERNAL SIGNAL	OFF	OFF ON		Enable or Disable internal color bars
OSD TIME	ON	ON 10 SEC 30 SEC 60 SEC		Set OSD Menu timeout
STATUS DISPLAY	OFF	OFF ON AUTO		Set Status Information timeout
LANGUAGE	ENGLISH	ENGLISH CHINESE		Set product language
FACTORY RESET	Use this selection with caution to reset the product settings to the way they were when it left the factory. IF YOU ARE UNSURE OF WHETHER TO PERFORM A FACTORY RESET, CLICK **CANCEL** AND THEN CONTACT WOHLER TECHNICAL SERVICE FOR ADVICE.			

* Note: Use caution when setting the Backlight to a very low number. Setting the Backlight to 0 or a low number may make it impossible to see the menus to correct the situation.
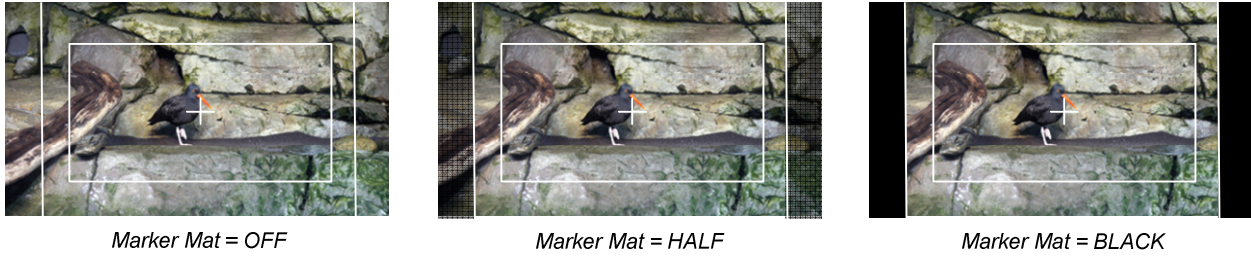
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Figure 2-7: Marker Mat Effect

Marker Mat = OFF   *Marker Mat = HALF*   *Marker Mat = BLACK*

Table 2-9: Remote Menu Structure

| Remote			
Parameters	**Default Value**	**Domain Range**	**Description**
IMD DISPLAY	ON	OFF ON	Set whether to display IMD characters on the screen
IMD PROTOCOL	LOCAL	TSL3.1 TSL4.0 STATIC	Select an IMD protocol
MONITOR ID	0	0 - 255	Set the ID number for each monitor
BAUD RATE	38400	2400 4800 9600 19200 38400 57600 115200	Select a bard rate for communication
IP ADDRESS	192.168.1.86	---	Set the IP Address
SUBNET MASK	255.255.255.0	---	Set the Subnet Mask
GATEWAY	192.168.1.1	---	Set the Gateway

Table 2-10: Key Inhibit Menu Structure

Key Inhibit			
Parameters	**Default Value**	**Domain Range**	**Description**
KEY INHIBIT	OFF	OFF ON	Inhibits most key functions to prevent inadvertent setting changes.

CHAPTER 3: Technical Info

Table 3–1: Specifications

Specification	Values/Domains
Power requirements	100 V to 240 VAC ± 10%, 50/60Hz
Power consumption	44 Watts
HDM-320-4K with tabletop stand	28.3" H x 17.4" W x 2.8" D 720 mm H x 442 mm W x 78 mm D
Weight with stand	13 lbs. (5.9 kg)
Supplied Accessories	Power Adapter, AC Power Cord
Display Type	IPS-LCD with LED Backlight
Number of Displays	1
Screen Size	32.0" diagonal per screen
Screen Resolution	3840(H) x 2160(V)
Aspect ratio	16:9, 4:3
Display Area (mm)	475(H) x 266(V)
Viewing Angle	178°(H) x 178° (V)
Color Depth	1.073G colors
Contrast Ratio	3000:1
Brightness	300 cd/m^2
Backlight	White LED
Response Time	9.5 ms
Video Inputs	4 x 3G SDI:
	SD-SDI: SMPTE 259M, ITU-R BT.656
	HD-SDI: SMPTE 292M/274M/296M
	3G-SDI: SMPTE 425-Level A
Video Input Impedance	75Ω
Audio Outputs	1 Selected Pair: 1/8" Headphone jack
Speakers	5W x 2 (Stereo)
Dynamic Tally/IMD	RS-485; TSL/ImageVideo on RJ-45
Network Setup/Control	10/100M Ethernet; Web Server on RJ-45

Figure 3–1: HDM-320-4K Series Block Diagram
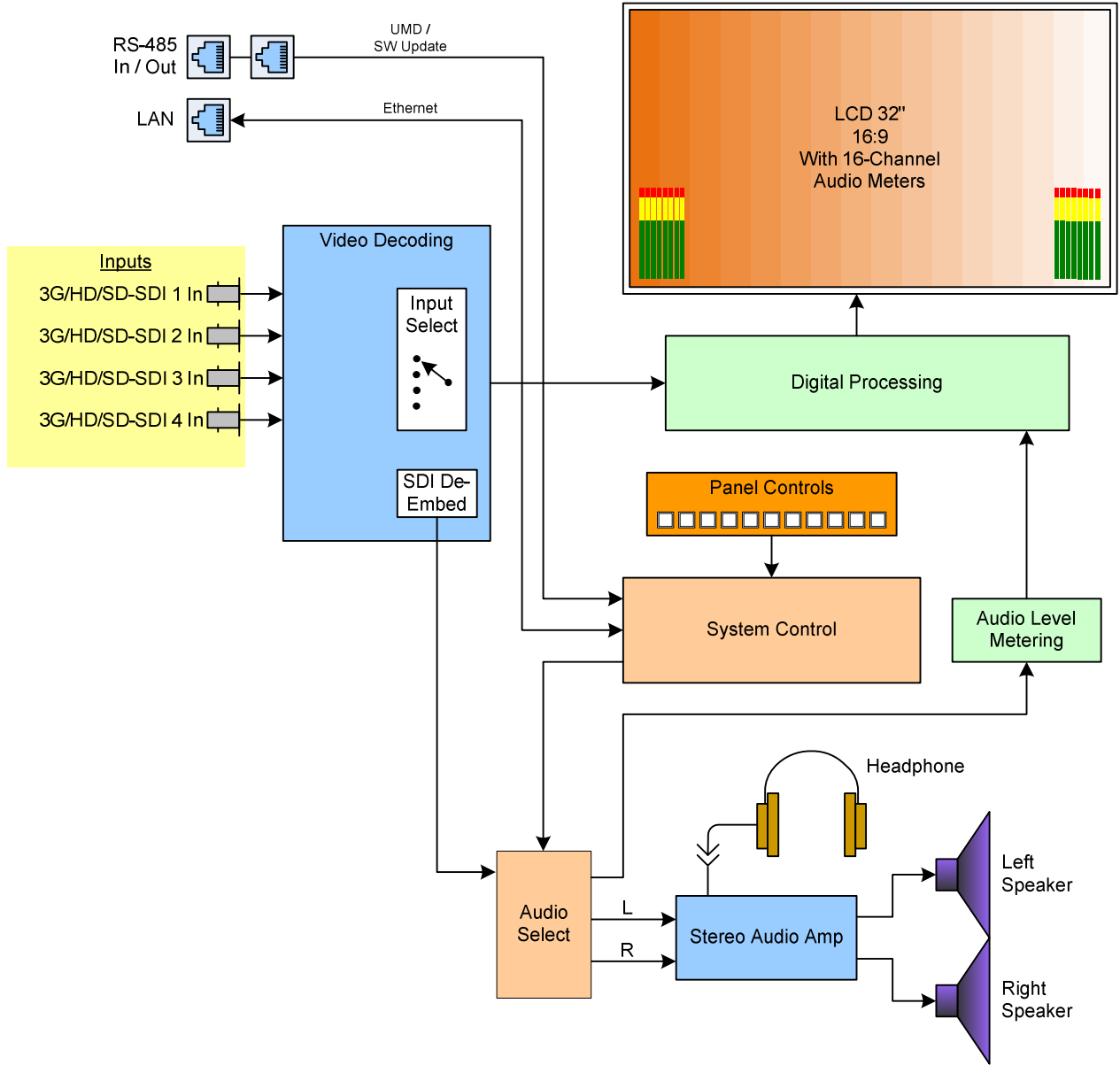
Supported Video Formats

The HDM-320-4K monitors will display the video formats listed in Table 3-2.

Table 3-2: Video Formats

Signal Format		SDI
HD	720p24/23.97	X
	720p25	X
	720p30/29.97	X
	720p50	X
	720p60/59.94	X
	1080sf24/23.97	X
	1080sf25	X
	1080sf29.97	X
	1080sf30	X
	1080i50	X
	1080i60/59.94	X
3G	1080p24/23.97	X
	1080p25	X
	1080p30/29.97	X
	1080p50	X
	1080p60/59.94	X
2K	1080p50	X
	1080p60/59.94	X
4K	4096x2160p60/59.94	X
	4096x2160p50	X
	3840x2160p60/59.94	X
	3840x2160p50	X

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CHAPTER 4: Using Network Control

The HDM-320-4K Web GUI allows you to customize the monitor configuration to perfectly suit your needs. The following setup steps are not necessary if you intend to use the HDM-320-4K in its default configuration or if you only make configuration changes using the OSD menus. However, the HDM-320-4K Web GUI network control is ideal for configuring difficult to access monitors.

Web Browser / Control Device

Any web browser application running on any networked device such as desktop or laptop computer, tablet, or smart phone can be used with the HDM-320-4K Web GUI.

If a tablet without a physical network connector is to be used, it needs to be linked to a copper LAN through a Wi-Fi adaptor.

Phones are not recommended due to their smaller screen size, which would require more scrolling.

The Chrome® web browser is recommended for speed and compatibility.

First Time- IP Assignments

The HDM-320-4K operates with a static (fixed) IPv4 address. The address will be **192.168.1.86** when received from the factory or when reset at the front panel. This is shown in Figure 4-2. The IP address will need to be changed to some other address to be compatible with the customer's network address assignments. Go to **System setup,** immediately after this host setup is done, to change the unit's address.

The surest way to do this, free of possible network conflicts, is to establish a direct peer-to-peer connection between the setup computer and the HDM-320-4K. A 10/100/1000 MHz Ethernet switch may be used in between, but is not required.

Figure 4-1 shows an example of suitable address settings for the host computer in a Windows 7 control panel.

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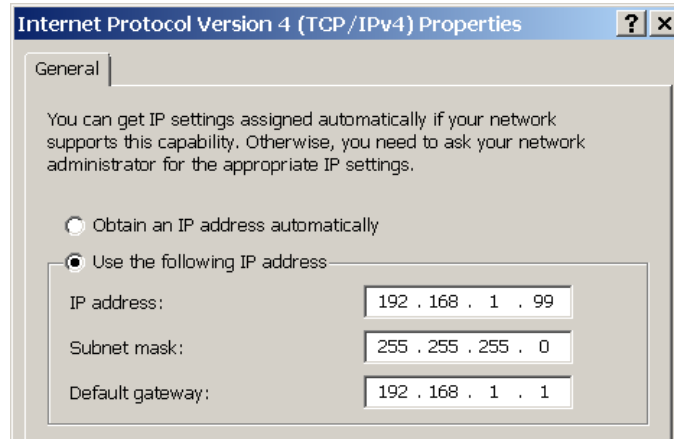
After making an IP address change such as this, close the control panel and reboot the host computer to be sure the change takes effect.

Make the final address, mask and gateway changes in the HDM-320-4K **System setup** page.

Management Interface

The Management Interface browser window is shown in Figure 4-2. Enter the IP Address of the monitor into the address bar on your browser and press the Enter key to access the web server. The settings in the Web GUI apply to the system in general, regardless of which input source is selected.

Figure 4–2: Status Page

IMD DISPLAY	⦿ OFF ⦿ ON
IMD COLOR	RED ▼ SET
IMD CHARACTER	HDM-320-3G-TT SET
IMD PROTOCOL	STATIC ▼ SET
IMD ID	0 ▼ SET
BAUD RATE	38400 ▼ SET
IPADDRESS	192.168.1.86 ▼ SET
SUBNET MASK	255.255.255.1 ▼ SET
GATEWAY	192.168.1.1 ▼ SET
LANGUAGE	⦿ ENGLISH ⦿ 中文

1. **IMD Display**: Select **ON** or **OFF** to determine whether you would like the IMD characters to display.

2. **IMD Color**: Select the color of the displayed IMD characters

3. **IMD Character**: Type the IMD characters to be displayed into the text box. Up to 16 characters may be entered. Click **SET** to put your selection into effect.

4. **IMD Protocol**: Select the IMD protocol from the pull down list. The choices are **TSL3.1**, **TSL4.0**, **Static**, and **Local**. Select **Static** if you would like to use the IMD characters entered on this screen. Click **SET** to put your

selection into effect.

5. **IMD ID**: Make a selection from the pull down list. Click **SET** to put your selection into effect.

6. **BAUD Rate**: Select the desired BAUD rate for the serial RS-485 IMD interface from the pull down list. Click **SET** to put your selection into effect.

7. **IP Address**: Make a selection from the pull down list. Click **SET** to put your selection into effect.

8. **Subnet Mask**: Make a selection from the pull down list. Click **SET** to put your selection into effect.

9. **Gateway**: Make a selection from the pull down list. Click **SET** to put your selection into effect.

10. **Language**: Select **English**.

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