

Marshall

Broadcast A/V Division

ML-454-V3

Quad 4.5" Full HD 2RU Rack Mount
Monitor with 3GSDI, HDMI Inputs



Owner's Manual

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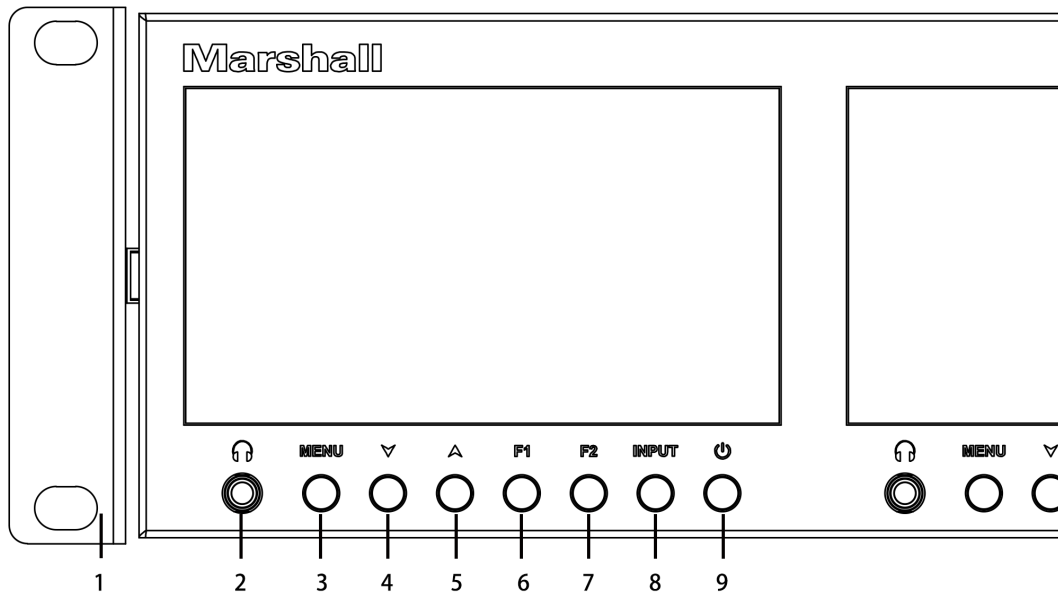
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IMPORTANT SAFETY and CARE INSTRUCTIONS:

- Please read the Owner’s Manual before using this product and keep it for reference
- Do not place the display on its face to avoid scratching the LCD surface.
- Avoid heavy impact.
- Do not use chemical solutions to clean this product. Simply wipe with a clean soft cloth to maintain the brightness of the surface.
- Take care not to block any vent hole. Overheating could occur.
- If the device performance is not correct, please check the trouble-shooting section at the end of this manual.
- Internal adjustments or repairs must be performed by a qualified technician. Opening the product without written permission from Marshall Electronics will void the warranty.

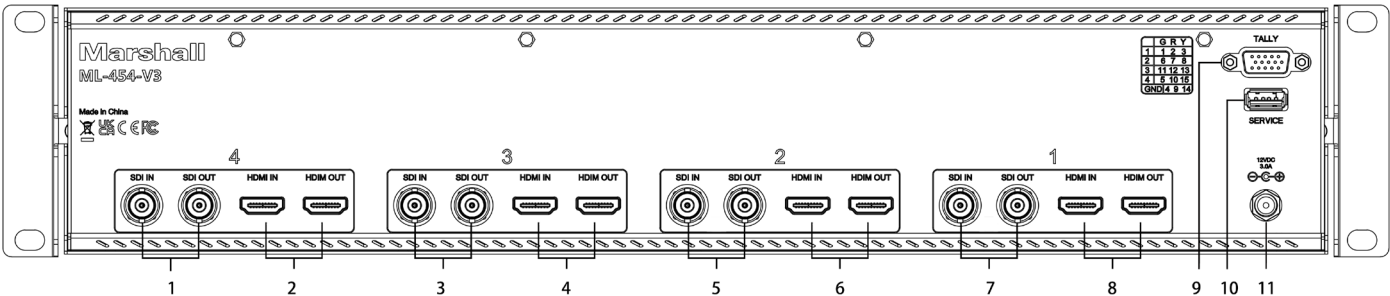
1. PRODUCT DESCRIPTION

FRONT PANEL FEATURES



1. **Rackmount ears with tilt capability.**
2. **Headphone jack.** Accepts standard 3.5mm mini-phone stereo plug.
3. **Menu key.** Activates the on-screen menus
4. **▼ key:** Works with headphone volume control and menu navigation
5. **▲ key:** Works with headphone volume control and menu navigation
6. **F1 User-defined function button**
7. **F2 User-defined function button**
(Long press F1 or F2 button for 3 ~ 5 seconds to choose options)
8. **INPUT button** Select between SDI and HDMI inputs.
9. **POWER button** Turn screen power On / Off (loop through outputs remain active)

BACK PANEL FEATURES



Note: Each screen has its own full complement of video input connections.
Power and TALLY connectors apply to all screens

1, 3, 5, & 7. Serial Digital “BNC” Connectors



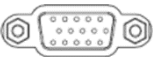
SDI input and loop out. Compatible with SD-SDI, HD-SDI and 3G-SDI inputs. Embedded audio may be monitored at the Headphone jack and visually monitored on-screen.
NOTE: SDI loop outs remain operational when screen power is turned OFF.

2, 4, 6, & 8. HDMI Digital Video Connectors



HDMI input and loop out. Embedded audio may be monitored at the Headphone jack and visually monitored on-screen.
NOTE: HDMI loop outs remain operational when screen power is turned OFF.

9. TALLY Connector



The on-screen tally indicator at the center-top of each monitor is controlled by grounding the appropriate pin on the Tally connector as shown in the table.
Caution: External power should never be applied to the Tally connector.

Screen #1	Tally	Screen #2	Tally	Screen #3	Tally	Screen #4	Tally
1	Green Light	6	Green Light	11	Green Light	5	Green Light
2	Red Light	7	Red Light	12	Red Light	10	Red Light
3	Yellow Light	8	Yellow Light	13	Yellow Light	15	Yellow Light
4	Ground	9	Ground	14	Ground		

10. “USB” Connector



USB input (Only used for firmware upgrade).

11. Barrel Power Connector



12V DC power port. Plug the supplied DC power adapter here.
Connector is 5.5mm x 2.1mm barrel type, center pin +.












2. MENU SETTINGS

Press the MENU key on the monitor and function menus will pop-up on the screen. Click ▲ or ▼ key to select an option. Then press the MENU key again to open the selection. When an arrow pointer appears in the menu, click ▲ and ▼ keys again to select the item or press the MENU key to confirm a selection.

1. PICTURE

This page provides controls for typical picture adjustments.

PICTURE		
	Brightness	50
	Contrast	50
	Saturation	50
	Sharpness	0
	HDMI EDID	4K
	Color Temp.	6500K
	Red Gain	128
	Green Gain	128
	HDMI	

ITEM	OPTIONS	
Brightness	0~100	
Contrast	0~100	
Saturation	0~100	
Sharpness	0~100	
HDMI EDID	4K/2K	
Color Temp.	6500K, 7500K, 9300K, User	
Red gain	0~128~255	When User is selected, separate Red, Green and Blue adjustments are available.
Green gain	0~128~255	
Blue gain	0~128~255	
Red offset	0-256-511	
Green offset	0-256-511	
Blue offset	0-256-511	
Exit		

Brightness – used to establish the correct black level in the picture. Default value is 50.

Contrast – establishes the range of dark to light areas in the picture. Default value is 50.

Saturation – set the amount of color information in the picture. Default value is 50.

Sharpness – adds synthetic “detail” to the image. Note: HD video images should require very little added sharpness. Default value is 0.

HDMI EDID – Selects the maximum screen resolution that is available and HDMI source. Default is 4K. EDID is sensed by the source device to auto select the video format it transmits to the monitor. When set to 2K, the video source (camera, etc.) will transmit a maximum image size of 1920x1080.


Color Temp – this setting provides three different presets for white balance approximating different common color “temperatures”. White / Black balance may be fine-tuned manually by selecting **User** and adjusting Gains and Offsets (pedestal level) as desired.

R/G/B Gain – Adjust the R/G/B Gain from 0 to 255. Default value: 128.

R/G/B Offset – Adjust the R/G/B Offset from 0 to 511. Default value: 256.

NOTE: Typically, Green is left at the Default value while Red & Blue are adjusted for best color match.

2. MARKER

MARKER		
	Center Marker	Off
	Aspect Marker	Off
	Safety Marker	Off
	Marker Color	White
	Aspect Mat.	Off
	Thickness	2
	Exit	
	HDMI	

This page offers controls for setting various on-screen markers.

ITEMS	OPTIONS
Center marker	Off / On
Aspect marker	Off, 16:9, 1.85:1, 2.35:1, 4:3, 3:2, 1.3X, 1.5X, 2.0X, 2.0X MAG, Grid
Safety marker	Off, 95, 93, 90, 88, 85, 80%
Marker color	Red, Green, Blue, White, Black
Aspect Mat.	Off, 1 - 7
Thickness	1 - 7
Exit	

Center Marker – places a “+” mark in the exact center of the display. (Useful for checking camera or graphics positioning.) Default is Off

Aspect Marker – places borders on screen representing various typical video and cinema aspect ratios. This does not change the picture, only the marker. Default is Off

Safety Marker – places a border around the edge of the screen to be used as a guide during video production. This can be used to indicate the area of the picture that is not likely to be cropped during editing or transmission. Default is Off.










Marker Color – the Center, Aspect and Screen marker colors can be changed. Default is White.

Aspect Mat. – darkens the background just behind the Aspect marker for better visibility. Default is Off.

Thickness – sets the width of the markers. Adjust as desired for best visibility. Default is 2.

3. FUNCTION

This page provides controls for picture size, position and related functions including Image Flip, Image Freeze and Zoom.

FUNCTION		
	Scan	Aspect
	Aspect	Full
	Overscan	Off
	Check Field	Off
	Zoom	50%
	Freeze	Off
	Image Flip	Off
	Peaking	Off
	HDMI	

ITEMS	OPTIONS
Scan	Aspect, Pixel-to-Pixel, Zoom
Aspect	Full, 16:9, 1.85:1, 2.35:1, 4:3, 3:2, 1.3X, 1.5X, 2.0X, 2.0X MAG
Overscan	Off / On
Check field	Off, Mono, Red, Green, Blue
Zoom	10% to 90% (10% steps)
Freeze	Off / On
Image flip	Off, H, V, H&V
Peaking	Off / On
Peaking color	Red, Green, Blue, White, Black
Peaking level	1~100
Exit	

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Scan – The item activates the Aspect, Pixel-to-Pixel or Zoom item below. Default is Aspect.

Aspect – This allows changing the aspect ratio (shape) of the picture to match the incoming video. Settings are available for various common video and cinema styles. Default is Full (filling the display). Because this monitor has 16:9 displays, **Full** and **16:9** will be the same.

Pixel-to-Pixel – It displays the incoming video with a 1:1 pixel match. This provides the clearest resolution but usually changes the size of the image. This turns off up/down scaling. For example: a video input that has fewer pixels than the LCD display will appear to shrink while a video input that has more pixels will appear to expand. In either case, the image is shown in its “true” resolution.

Zoom – Zoom expands the picture. It is normal for picture quality to become less sharp as the picture is expanded. Zoom adjustment is available from 10% to 90%. Default is 50%.

Overscan – enlarge the image slightly to conceal image edges. Default is Off.

Check Field – displays the picture using individual primary colors or in monochrome (black & white). Useful for color analysis and trouble shooting. Default is Off.

Freeze – holds the current picture on screen. Useful to analyze a single frame. Default is Off.

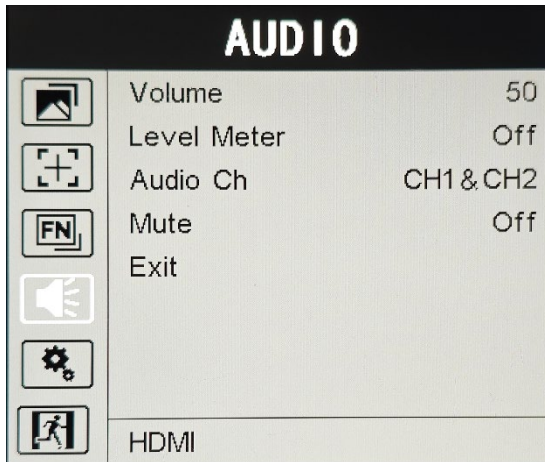
Image Flip – the picture can be reversed top to bottom, left to right or both. This can be a useful tool when viewing images shot through mirrors or from cameras mounted upside-down. Default is Off

Peaking – enhances picture detail by adding color to the sharpest areas. Useful when setting cameras to sharpest focus. Not useful for normal viewing.

Peaking color – Multiple colors choices are available for the Peaking effect. Select the color that makes focusing easiest. Default color is Green though Red is often used.

Peaking level - Use this to set the amount of Peaking effect added to the picture. Setting is adjusted to user preference. Default is 50.

4. AUDIO



This Page used to adjust volume, audio channel, level meter and mute.

ITEMS	OPTIONS
Volume	0~100
Level meter	Off / On
Audio channel	Select channel pairs from CH1&CH2, to CH15&CH16
Mute	Off / On
Exit	

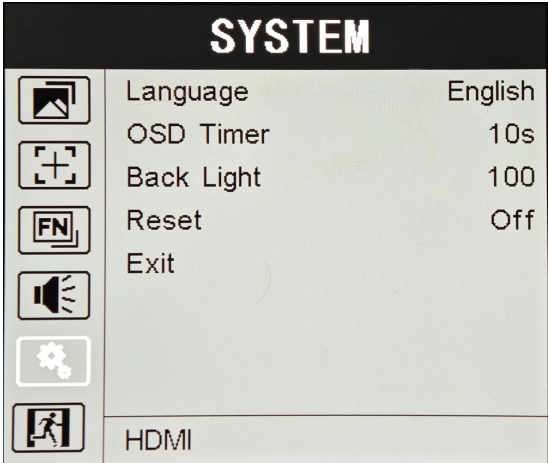
Volume – Sets headphone volume level. Volume can also be controlled quickly via the front panel arrow keys. Default is 50.

Level Meter – Shows an on-screen bar graph of two audio channels from either an HDMI or SDI digital source.

Audio Ch– Selects which audio channel pair is displayed on the Level Meter and heard in the headphones. With SDI sources, pairs may be selected from up to 16 channels. With HDMI sources, pairs may be selected from up to 8 channels. Default is Channels 1&2

Mute – Disables the headphone audio output when it is On. Muting default is Off (audio can be heard).

5. SYSTEM



The System page provides a collection of system-level functions including menu language, On Screen Display (OSD) control, backlight adjustment and reset the monitor to Factory settings.

ITEMS	OPTIONS
Language	English / 中文
OSD timer	10s, 20s, 30s
Back light	0~100
Reset	Off / On
Exit	

Language – sets on-screen messages to either English or Chinese. Default is English

OSD Timer – Adjusts the amount of time menus remain on screen.

Back light – Adjusts the intensity of the LCD backlight. This is different from Brightness control. Backlight is adjusted to compensate for room lighting without upsetting normal Contrast and Brightness adjustments. Default is 100 (maximum).

Reset – sets all menu items back to the way the unit ships from the factory. When On is selected, the monitor immediately restarts. Each screen is reset individually.

USER FUNCTION SHORT CUT (F1 – F2) MENU

The monitor front panel has two short cut keys marked F1 and F2. The default settings are shown here:

FUNCTION KEY	STANDARD SHORT CUTS
F1	Peaking function On / Off
F2	Level meter On / Off

These keys may be re-programmed at any time by first pressing one of them for about three seconds. The function key menu will appear at the right side of the screen. Use ▲ and ▼ keys to select a new function. Press the MENU button to set the function.

These short cuts that may be assigned to the F1 or F2 keys:

OPTIONAL SHORT CUTS		
Center marker	Scan	Peaking
Aspect marker	Aspect	Mute
Check field	Freeze	Level meter
Overscan	Image flip	

Please refer to the individual menu pages above for details about these functions.

ARROW KEYS (▲ ▼) SPECIAL FUNCTIONS

The front panel arrow keys operate differently under the following conditions.

CONDITION	FUNCTION
MENUS ON	Normal Menu Operations
MENUS OFF	Volume Up / Down
ZOOM MODE ON	Shift Picture Left / Right, Up / Down

3. SPECIFICATIONS

Panel Size	4.41-inch diagonal x 4
Panel Resolution	1920 × 1080 pixels
Brightness	400 cd/m ²
Contrast	1500: 1
Viewing Angle	170° / 170°(H/V)
Input Signal	HDMI, SDI
Output Signal (loop out)	HDMI, SDI (reclocked)
Input Voltage	DC 12V
Power Consumption	Typically, 24 Watts / 1.75 Amps or less
Operating Temperature	32°F~122°F (0°C~50°C)
Storage Temperature	-4°F~140°F (-20°C~60°C)
Dimension W/H/D	19" x 3.5" x 1.5" (482.7mm×88mm×38mm)
Weight	3.50 lbs (1.6Kg)

4. INCLUDED ACCESSORIES

1. DC 12V Power adapter
2. Tally Connector – 15-pin breakout adapter

5. TROUBLESHOOTING

1. Power on but no picture:

Check whether the cables are correctly connected. Also, please use the standard power adapter coming with the product package or other 12 volt power supply with 5.5mm x 2.1mm coaxial connector, center pin positive.

2. Only black-and-white display:

Check whether the color saturation and brightness are properly set.
Access the FUNCTION menu and make sure Check Field is Off.

3. Wrong or abnormal colors:

Check whether the cables are correctly connected. Broken or loose pins of the cables may cause a bad connection. This is particularly likely with worn or low quality HDMI cables.

4. Picture is “stuck” on screen:

Access the VIDEO menu page and check that IMAGE FREEZE is Off.

5. Other problems:

The monitor can be reset to Factory original settings. This is sometimes useful to eliminate the possibility that an improperly set menu item is interfering with the operation. To reset the monitor, access the SYSTEM menu page, press the MENU key then press the “^” and “v” key to select RESET. Press the menu key to cause the unit to reset.

Marshall Electronics warrants to the first consumer that this ML-454-V3, Quad 4.5" Screens 2RU Rackmount monitor, will in normal use, be free from defects in workmanship and materials, when received in its original container, for a period of one year from the purchase date. This warranty is extended to the first consumer only, and proof of purchase is necessary to honor the warranty. If there is no proof of purchase provided with a warranty claim, Marshall Electronics reserves the right not to honor the warranty set forth above. Therefore, labor and parts may be charged to the consumer.

This warranty does not apply to the product exterior or cosmetics. Misuse, abnormal handling, alterations or modifications in design or construction void this warranty.

No sales personnel of the seller or any other person is authorized to make any warranties other than those described above, or to extend the duration of any warranties on behalf of Marshall Electronics, beyond the time period described above.

Note: Due to constant effort to improve products and product features, specifications may change without prior notice.

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