

ML-702

Dual 7" 3RU Rack Mount Monitor



Operating Instructions

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IMPORTANT SAFETY INSTRUCTIONS:

- Please read Operating Instructions (this manual) before using the product.
- Keep the manual for future reference.
- Read the cautions below to prevent possible component failure or degradation.

CAUTIONS:

- To avoid scratching the LCD surface, do NOT place the monitor on its face
- 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.
- Do NOT block vent holes. Be aware of mounting heat-producing equipment below this product.
- Use the following Instructions and Trouble-shooting Section (page 12) of the manual to adjust the product. Internal adjustments or repairs must be performed only by Marshall Electronics.

Product Description

Front Panel Features



1. Rackmount ears with tilt capability.

Tilt monitor for best visibility or to improve ventilation.

2. Headphone jack. Accepts standard 3.5mm stereo mini-phone plug.

3. POWER button (Lights red in standby mode; green when operating).

4. INPUT select button cycles through SDI, HDMI and Video.

5. F1~F4 user-defined short cut buttons (lighted when selected).

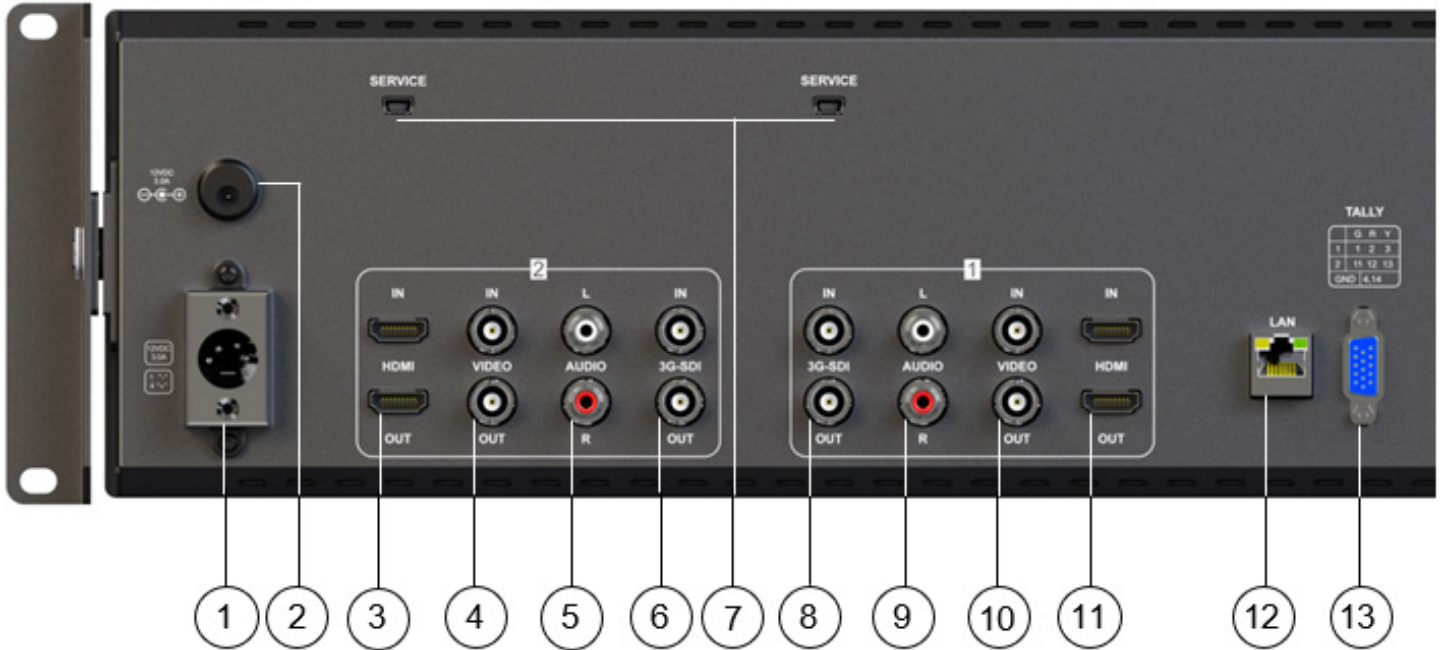
Short Cut: Access the [SETTING] menu page to set user-defined functions.

6. Menu Knob. Turn without pressing to adjust headphone volume.

Press to open menu system.

Product Description

Back Panel Features



Note: Power, TALLY and LAN apply to both screens. Inputs and USB service ports apply to each screen individually.

1. Push-on Power Connector

POWER+12V



12V DC power input 5.5mm x 2.1mm push-on connector.

Plug the supplied DC power adapter here. (Center pin is +)

Important: Please connect only *one* type of power supply at a time to this monitor.

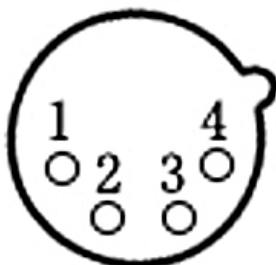
2. 4-pin Power Connector

4-pin XLR DC power input compatible with typical broadcast television camera

12-volt power supplies. **CAUTION:** Some 4-pin power supplies provide 24 volts.

These are **NOT** compatible with this monitor. Please check the label on the power supply before connecting.

Important: Please connect only *one* type of power supply at a time to this monitor.



Pin number	Signal
1	GND
2	No connection
3	No connection
4	+12V

3, 11. HDMI Digital Video Connectors



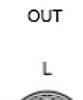
HDMI input and loop out. Embedded audio may be monitored at the headphone jack and visually monitored on-screen.



4, 10. Composite Analog Connectors



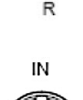
Video input and loop out. Used for NTSC or PAL composite (CVBS) video sources.



5, 9. Analog RCA Connectors



Audio left and right inputs. These audio inputs are active only whenever Video is selected as the source. This audio may be monitored at the headphone jack.



6, 8. Serial Digital “BNC” Connectors



SDI input and loop out. Compatible with SDI, HD SDI and 3G SDI inputs. Embedded audio may be monitored at the headphone jack and visually monitored on-screen.

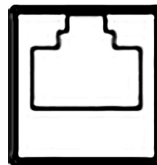


7. USB Service Ports



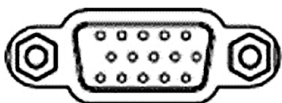
USB input (Only used for program upgrades and LUT load).

12. Ethernet LAN RJ-45 Connector



LAN port. The monitor can be operated from a Windows™ PC using the PCSet application available on Marshall-usa.com.

13. TALLY Connector



A red, green, or yellow on-screen tally bar can be made to appear by grounding the appropriate pin on the Tally connector as shown in the table. It is compatible with “open collector” and “pull down” type GPI controls. **Caution: External power should never be applied to the Tally.**

Screen #1	Tally	Screen #2	Tally
1	Green Light	11	Green Light
2	Red Light	12	Red Light
3	Yellow Light	13	Yellow Light
4	Ground	14	Ground

Menu Settings

Press **MENU** knob on the monitor and function menus will pop-up on the screen. Rotate left or right to select an option. Then press the knob again to open the sub-menu. When an arrow pointer appears in the menu, turn the **Menu** knob again to access the item or press the knob to confirm a selection.

1. PICTURE

This page provides controls for typical picture adjustments.

PICTURE		
	Brightness	50
	Contrast	50
	Saturation	50
	Sharpness	0
	Color Temp.	6500K
	Exit	
	HDMI	

ITEM	OPTIONS	
Brightness	0~100	
Contrast	0~100	
Saturation	0~100	
Sharpness	0~100	
Color Temp.	6500K / 7500K / 9300K / User*	
Red gain	0~128~255	*When User is selected, these Gain and Offset adjustments will appear in the menus.
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 – sets the amount of color information in the picture. Default value is 50.

Tint – this function is designed to remove color errors in composite analog (NTSC, PAL) signals. A better choice for component and digital signals is to use Color Temp / User to establish the correct color tones. Tint control is only available when VIDEO input is selected. Default value is 50.

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

Color Temp – this setting provides three different presets for white balance approximating different common color “temperatures”. USER allows for custom calibration by adjusting Gains and Offsets as desired:

R/G/B Gain – Adjust the R/G/B Gain of the current Color Temperature from 0 to 255. Default value is 128.

R/G/B Offset – Adjust the R/G/B Offset of the current Color Temperature from 0 to 511. Default value is 256.

2. MARKER

MARKER		
	Center marker	Off
	Aspect marker	Off
	Safety marker	Off
	Marker color	Red
	Grid	Off
	Aspect Mat.	Off
	Thickness	1
	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
Safety marker	Off / 95% / 93% / 90% / 88% / 85% / 80%
Marker color	Red / Green / Blue / White / Black
Grid	Off / On
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.)

Aspect Marker – places borders on screen representing various typical video and cinema aspect ratios. *This does not change the displayed aspect ratio.* (That setting is in the **Video** menu.)

Safety Marker – places a border around the edge of the screen to be used as a guide during video production.

Marker Color – the **Center**, **Aspect** and **Screen** marker colors can be changed here.

Grid – On-screen grid lines are useful when matching camera shots or during editing. When Grid is turned on, **Center**, **Aspect** and **Safety** markers will not appear.

Marker Mat – darkens the background just behind the markers for visibility. When Grid is turned on, **Center**, **Aspect** and **Safety** markers will not appear.

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

Menu Settings

3. VIDEO



This page provides controls for picture size, position and related functions including image flip, image freeze and Zoom.

ITEMS	OPTIONS
Scan	Aspect / Pixel-To-Pixel / Zoom
Aspect	Full / 1.85:1 / 2.35:1 / 4:3 / 3:2
Display scan	Fullscan / Overscan / Underscan
Check field	Off / Mono / Red / Green / Blue
Zoom	X1.5 / X2 / X3 / X4
Freeze	Off / On
Image flip	Off / H / V / H&V
Exit	

Scan – Selects various display methods. When **Aspect** is selected, the item below this one can adjust the aspect ratio of the displayed image.

Aspect – Allows changing the aspect ratio (shape) of the picture to match the incoming video. Settings are available for various video and cinema styles.

Pix-to-pix – 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. This can be useful to determine where artifacts are occurring by eliminating monitor scaling. **When this mode is on, Aspect, Display Scan, Zoom and Markers will be off.**

Zoom – expands the picture. It is normal for picture quality to become less sharp as the picture is expanded. When this mode is on, **Aspect, Display Scan and Markers** will be off.

Display Scan – Provides additional methods for viewing images

Full scan – Uses all pixels available in the display. This may not match the aspect ratio of the incoming signal.

Overscan – enlarge the image slightly to conceal image edges.

Underscan – shrinks the image slightly to allow viewing image edges

Check Field – displays the picture in monochrome (black & white) or in individual primary colors. Useful for color analysis and troubleshooting.










Freeze – holds the current picture on screen.

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.

VIDEO continued

DSLR – Use the DSLR Preset option to reduce the visibility of on screen indicators shown with popular DSLR cameras. The available options are: **5D2**, **5D3**. DSLR option is only available with HDMI input selected. **Aspect** and **Marker** settings are not available in this mode.

4. CAMERA AUX

CAMERA AUX		
	Peaking	Off
	Peaking color	Red
	Peaking level	50
	False color	Off
	Exposure	Off
	Exposure level	85
	Histogram	Off
	Exit	
	HDMI	

This page offers settings to assist with camera focus.

ITEMS	OPTIONS
Peaking	Off / On
Peaking color	Red / Green / Blue / White / Black
Peaking level	0-50-100
False color	Off / On
Exposure	Off / On
Exposure level	0-50-100
Histogram	Off / On
Exit	

Peaking - adds a colored edge to picture details making it easy to identify which areas are in sharpest focus. This is a useful tool to use during camera lens adjustments.

Peaking color – Peaking colors may be changed as needed for best visibility. Available colors: red, green, blue, white, black. The default color is red.

Peaking level - Use this setting to adjust amount of edge peaking to suit user preference. Default level is 50.

False Color - a method to show each brightness in the picture with a different color. It provides a quick way to tell if one part of a picture is too bright or too dark. Each color represents 10% level change.

Exposure - creates “zebra” lines in the brightest areas of the picture. This mimics a feature that is commonly found in broadcast camera viewfinders which provides a quick way to check for over-exposure.

Exposure level - Use this setting to adjust the level that zebra lines will appear.

Histogram - is a graphical representation of the tonal distribution within a picture. This mimics a feature commonly found in DSLR cameras.

Menu Settings

AUDIO		
	Volume	50
	Audio channel	CH1&CH2
	Level meter	Off
	Mute	Off
	Exit	
	SDI	

5. AUDIO

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

ITEMS	OPTIONS
Volume	0-50-100
Audio channel	CH1&CH2 / CH3&CH4 / CH5&CH6 / CH7&CH8 CH9&CH10 CH11&CH12 / CH13&CH14 / CH15&CH16
Level meter	Off / On
Mute	Off / On
Exit	

Volume – controls the Headphone volume. Headphone volume can also be adjusted easily by using the up/down arrow keys when the menus are not on screen. Default volume setting is 50.

Audio channel – With SDI input, channel pairs may be selected from 1-16. With HDMI input, Channels 1&2 will be used.

Level Meter – shows an on-screen bar graph of two audio channels (typically Left and Right) from either an HDMI or SDI digital source.

Mute – Disables the headphone audio output when turned ON.

6. SETTING

The Setting page provides a collection of system-level functions including On-Screen Display (OSD), Ethernet port settings (IP Config), short cut key (F1 – F4), and Factory Reset.

SETTING		
	Language	English
	OSD timer	30s
	Back light	100
	DHCP	Off
	IP	192.168.123.150
	Mask	255.255.255. 0
	Gateway	192.168.123. 1
	F1 Conf.	Center marker
	HDMI	

ITEMS	OPTIONS
Language	English / Chinese
OSD timer	10s / 20s / 30s
Back light	0~100
DHCP	Off / On
IP	0.0.0.0
Mask	0.0.0.0
Gateway	0.0.0.0
F1 Conf.	Function configuration Select to show a list of shortcuts (F1 – F4).
F2 Conf.	
F3 Conf.	
F4 Conf.	
Reset	Off / On
Exit	

SETTING (continued)

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

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

Back light – Adjusts the brightness of the LCD backlight. This is different from the “Brightness” control. Backlight is adjusted to compensate for room lighting without upsetting Contrast and Brightness adjustments. It is generally best practice to set the Back Light level before changing other picture settings.

DHCP – Enable or disable DHCP. When DHCP is on, the monitor will automatically get an IP address from the network. The address will appear in the IP, Mask and Gateway fields below. When DHCP is off, a Static address may be created manually using the menu knob and arrow keys.

IP – Configures or displays IP address

Mask – Configures or displays Subnet Mask

Gateway – Configures or displays Gateway

F1 Conf. – Configuration for short cut key **F1**. Default is Peaking.

F2 Conf. – Configuration for short cut key **F2**. Default is Level Meter.

F3 Conf. – Configuration for short cut key **F2**. Default is Level Meter.

F4 Conf. – Configuration for short cut key **F2**. Default is Level Meter.

AVAILABLE SHORT CUTS F1-F4		
Center marker	Scan	Peaking
Aspect marker	Aspect	False color
Grid	DSLR	Exposure
Check field	Freeze	Histogram
Display scan	Image flip	Mute
Level meter		

Reset – Sets all menu items back to the way the unit ships from the factory.

Specifications

Panel Size	2 x 7-inch screens
Panel Resolution	1920 × 1200 pixels
Brightness	450 cd/m ²
Contrast	1100: 1
Viewing Angle	160° / 160°(H/V)
Input Voltage	DC 12V
Input Signal	HDMI, SDI, Video, Audio
Power Consumption	≤19W
Operating Temperature	-10°C ~ 60°C
Storage Temperature	-20°C ~ 60°C
Dimension W/H/D	19" x 5.3" x 1" (482 × 133.5 × 25mm)
Weight	5.0lbs (2.25Kg)

Included Accessories

- **DC 12V 3A Universal 120/240 VAC 50/60 Hz Power adapter** with 5.5mm x 2.1mm push connector
- **Tally kit** – adapts 15-pin Tally connector to solderless terminal block

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 power supply with the correct voltage and pin configuration.

2. Only black-and-white display:

Check whether the color saturation and brightness are properly set. Access the Video 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 HDMI the cables may cause a bad connection. Access the Camera AUX menu page. Check that Peaking is off.

4. Picture is “stuck” on screen:

Access the Video menu page and check that IMAGE FREEZE is off.

5. Solving 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 SETTING menu page, press the Menu knob then rotate left or right to select Reset. Press the knob once then rotate the knob to cause the unit to reset.

PCSet Remote Terminal Application

PCSet Remote Terminal is a convenient software tool for controlling multiple monitors from a single computer. PCSet will run on any Windows™ based computer (XP or later) and installs quickly by creating a desktop icon. Simply double-click the desktop icon and the control screen will appear. PCSet discovers the monitors on the network and adapts the control function display accordingly. **Currently works with models ML-503, ML-702, V-702, V-702-12G.**

Download the PCSet Remote Terminal Application with instructions here:

<https://marshall-usa.com/software/PCSet-Remote-Terminal.zip>

WARRANTY

For Warranty information please refer to Marshall website page:

<https://marshall-usa.com/company/warranty.php>

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