

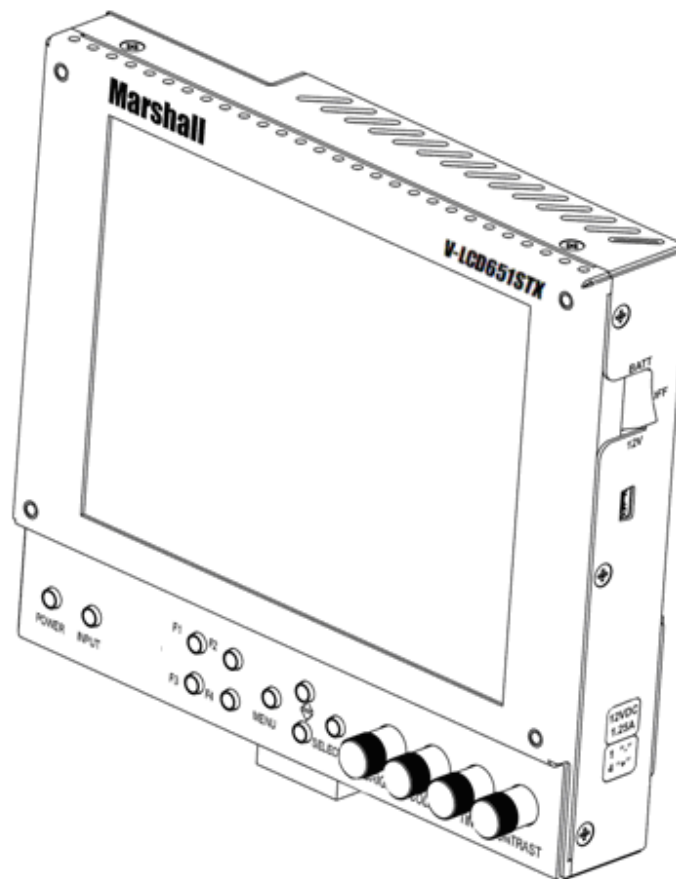
Marshall Electronics

Model No. V-LCD651STX-HDA

~~Model No. V-LCD651STX-HDI~~

Model No. V-LCD651STX-3GSDI

6.5" High Resolution Super Transflective Field Monitor



Operating Instructions

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Product Overview

The V-LCD651STX monitor series is a 6.5" high-definition Super Transflective LCD series of monitors featuring our completely digital TFT-MegaPixel active matrix LCD platform. With built-in focus assist and false color filters, this monitor is ideal as a light-weight high resolution viewfinder or focus-assist monitor. Our proprietary digital signal processing features 10-bit A/D conversion of all analog signals, with 4X over-sampling and 5-line super-adaptive 2D comb filtering of composite signals. De-interlacing is performed using our HyperProcess algorithm with motion adaptive interpolation. Multi-format compatibility accommodates virtually all video formats including NTSC/PAL, 480i/p, 720p, 1080i/p. The HDMI model in the series (V-LCD651STX-HDI) accepts digital HDMI video as well as standard VESA formats. The 3G-SDI model in the series (V-LCD651STX-3GSDI) acts as a triple-rate SDI input accepting SDI, HD-SDI and 3G-SDI input formats. Adjustable color temperature enables the most precise color representation possible. Advanced features include aspect ratio settings, a variety of screen markers, underscan mode, blue-only mode, monochrome mode, H/V delay, User Pixel-to-Pixel mode, and HDMI Input Format selection(HDMI model only).

Features

■ High-Resolution 6.5" Panel

The V-LCD651STX-HDA features an all-digital TFT-MegaPixel active matrix LCD system with 2.4 million pixels. The LCD panel features a brightness of 650 cd/m² and a contrast ratio of 500:1 making the display ideal in a variety of environments and lighting conditions.

■ Super Transflective

The V-LCD651STX-HDA can be used in locations with high intensity ambient light. This monitor performs very well in sunlight, or indoors under direct studio lighting.

■ Multi-Format Compatibility

The V-LCD651STX accommodates many video standards with **Composite Video** and **YPbPr** inputs. Accepted formats include NTSC/PAL, 480i/p, 576i/p, 720p and 1080i. The HDMI version of the V-LCD651STX accepts digital video inputs and standard VESA formats. The 3G-SDI version includes a triple-rate SDI input, accepting SDI, HD-SDI and 3G-SDI inputs up to 1080p60.

■ End-to-End Digital Signal Processing

Analog input signals are digitized using an advanced 10-bit process with 4x over-sampling, 5-line super-adaptive 2D comb filtering and exacting color space conversion. Video is scaled to fit on the screen in the highest possible resolution using a state-of-the-art LSI that incorporates precision gamma correction and our HyperProcess motion adaptive interpolation for interlaced images.

■ Focus-Assist, False Color Filter, and other

Advanced Features

Focus-Assist, False Color filter, Aspect ratio settings, underscan mode, blue-only mode, monochrome mode, and H/V delay are a few of the advanced features which make the V-LCD651STX at home in

any broadcast environment. Pixel-to-Pixel mode also allows native display of any incoming image format.

■ Flexible Screen Markers

A variety of screen markers in 4:3, 16:9, and full screen modes allow accurate monitoring of the different aspect ratios used in broadcast environments. You also have the option of creating your own screen markers with the User option.

■ User-Definable Function Buttons

Four user-definable function buttons on the front-panel allow quick access to numerous settings and features including focus-assist, false color filter, aspect ratio, screen markers, monochrome mode, color temperature, delay mode, and more.

■ User-Interchangeable Battery Adapters

Several battery adapter options accommodate a wide variety of professional batteries and camcorder batteries

Installation and Initial Setup

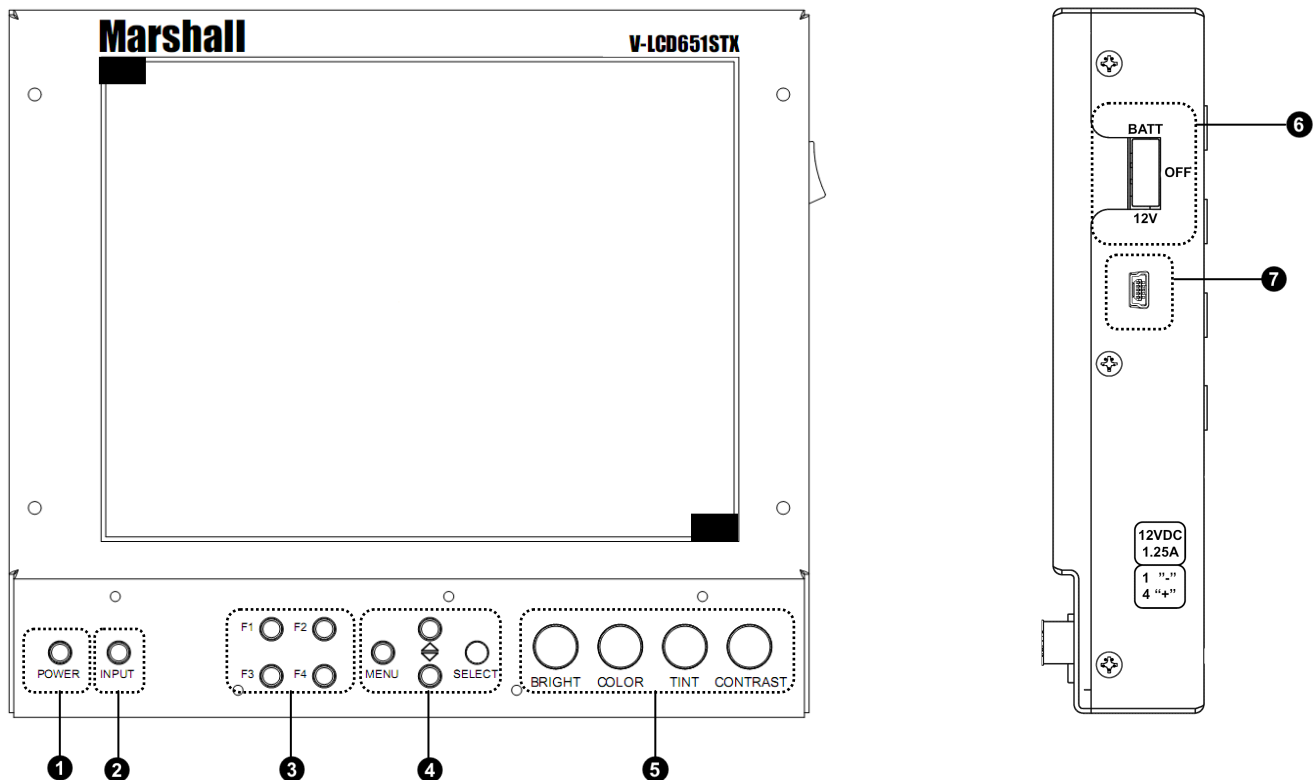
■ Unpacking

Carefully unpack the V-LCD651STX monitor and verify that the following items are included:

- V-LCD651STX Monitor
- V-PS12-5V-XLR Power Supply with 4-Pin Female XLR Connector
- Operating Instructions

Inspect the unit for any physical damage that may have occurred during shipping. Should there be any damage, immediately call Marshall Electronics Customer Service at (800) 800-6608. If you are not located within the continental United States, call +1 (310) 333-0606.

Front and Side Monitor Features



1 **Power Button**

Use the power button to toggle between ON and STANDBY modes. In the STANDBY state, the LED on the button will illuminate bright green. In the ON state, the LED will dimly illuminate green.

2 **Input Select Button**

Use the Input button to select VIDEO, YPbPr, and HDMI inputs. Each press of the button will cycle the input in order. Video standards and formats (NTSC/PAL, etc.) are automatically detected.

3 **User-Definable Function Buttons**

Four user-definable function buttons can be used for direct access to various settings. Functions are assigned using the on-screen menu.

4 **Menu Navigation Buttons**

Use the Menu, ▲, ▼, and Select buttons to display and navigate the on-screen menu.

5 **Image Adjustment Knobs**

Use the image adjustment knobs to adjust brightness, color saturation, and contrast of the image. The status of each image adjustment parameter is shown on the bottom left of the screen, with values ranging from 0 to 100. Default value is 50. Tint will adjust the hue of Composite inputs only.

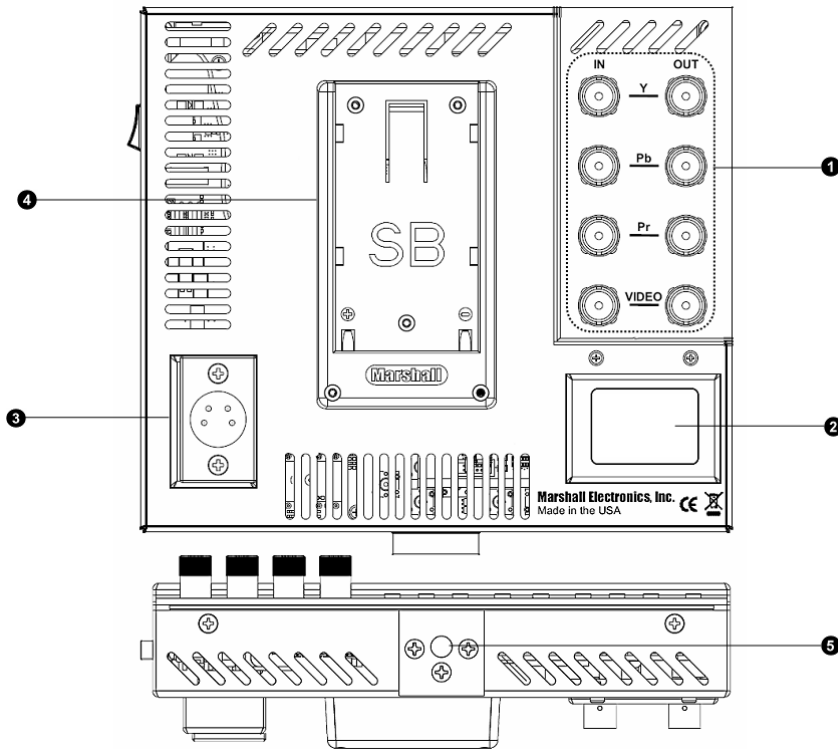
6 **Power Switch**

Use the hard power switch to supply power to the monitor, and choose the input from which the monitor draws power. The upper switch position uses the battery adapter, the lower switch position uses the XLR input, and the center position is OFF. Battery life can be preserved by setting this switch to the OFF position when the monitor is not in use.

7 **Service Connector**

This connector is for upgrading of the V-LCD651STX monitor. Please contact Marshall Electronics for more information.

Rear Monitor Features

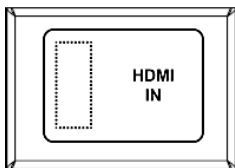


1 Component and Composite Input and Output

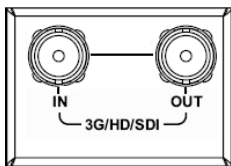
The V-LCD651STX has HD component (YPbPr), composite as well as active loop-through outputs for each analog input. See page 8 for supported video formats. The BNC inputs are internally terminated with 75 ohms.

2 Module Slot

This area is intended for the Marshall Electronics modules, which are factory installed.



HDMI connector on the V-LCD651STX-HDMI model.



3G-SDI connector on the V-LCD651STX-3GSDI model.

3 Power Input

Connect 12VDC to the 4-Pin XLR power input connector. Power can be supplied from the included power supply, or from a variety of DC sources supplying at least 1 Amp at 12 Volts.

IMPORTANT: If using a power source other than the included power supply, be sure that the polarity of the DC input is correct:

- Pin 1: GND
- Pin 2: N/C
- Pin 3: N/C
- Pin 4: +12VDC

4 Battery Adapter

The V-LCD651STX-HDI can be powered from a variety of batteries. Several user-interchangeable battery adapters are available. See page 18 for available adapters.

5 1/4-20 Mounting Hole

Use the 1/4-20 mounting hole to attach the monitor to a camera or variety of mounting devices

Compatible Input Formats

The following standards are supported by the V-LCD651STX monitors:

Composite (CVBS)

NTSC, PAL

Component (YPbPr)

480i60, 576i50
720p (30, 29.97, 25)
720p (60 / 59.94 / 50)
1080p (30, 29.97, 25, 24, 24 sF, 23.98, 23.98 sF)
1080i (60 / 59.94 / 50) ,

HDMI and 3GSDI Inputs

V-LCD651STX-3GSDI – V-LCD651STX monitor with Triple-Rate SDI Input / Output

SD-SDI –

480i 59.94, 576i 50

HD-SDI –

720p (60 / 59.94 / 50 / 30 / 29.97 / 25)

1080i (60 / 59.94 / 50)

1080p (30 / 29.97/ 25 / 24 / 24sF/ 23.98 / 23.98sF)

3G-SDI – YCbCr (4:2:2) 10 Bit – Level A and B

1080p (60 / 59.94 / 50)

YCbCr/RGB (4:4:4) 10 Bit – Level A and B

1080i (60 / 59.94 / 50)

1080p (30 / 29.97 / 29.97sF / 25 / 25sF / 24 / 24sF / 23.98 / 23.98sF)

V-LCD651STX-HDI – V-LCD651STX monitor with HDMI Input

HDMI Video–

720p (60 / 59.94 / 50 / 30 / 29.97 / 25)

1080i (60 / 59.94 / 50)

1080p (30 / 29.97/ 25 / 24 / 24sF/ 23.98 / 23.98sF)

1080p (60 / 59.94 / 50)

VESA –

640 x 480 (60 Hz / 72 Hz / 75 Hz)

800 x 600 (56 Hz / 60 Hz / 72 Hz / 75 Hz)

1024 x 768 (60 Hz / 70 Hz / 75 Hz)

1280 x 1024 (60 Hz / 75 Hz)

On Screen Menu

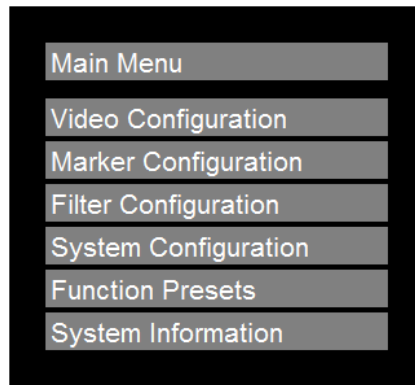
Main Menu	Video Configuration	RGB Bias and Gain	R, G, B Bias (0-100) / R, G, B Gain (0-100)
		Check Field	Off, Mono, Blue, Green, Red
		Ratio	4:3, 16:9
		Pixel-to-Pixel	Off, Centered, User
		H/V Delay *	Off, H & V Delay, V Delay, H Delay
		Underscan *	Off, On
		NTSC Black Level **	7.5 IRE
	Marker Configuration	Markers	Off, On
		Center Marker	Off, On
		16:9 Markers	Off, 4:3, 13:9, 14:9, 1.85:1, 2.35:1, 95% Safe, 93% Safe, 90% Safe, 88% Safe, 85% Safe, 80% Safe, User
		4:3 Markers	Off, 95% Safe, 93% Safe, 90% Safe, 88% Safe, 85% Safe, 80% Safe, User
		Marker Background	0%, 25%, 50%, 75%, 100%
	Filter Configuration	False Colors	Off, On
		Peaking Filter	Off, On
		Mosquito Filter	Off, On
	System Configuration	Input Format OSD	5 sec, Off, On
		Curtrain Color	Blue, Green, Black
		Splash Screen	On, Off
		Freeze Input	On, Off
		Manufacturer Default	Select
		HDMI Color Space*	Auto, YCbCr, RGB
		HDMI Aspect Ratio*	Manual, Auto
	Function Presets	Function on F1	Ratio, Check Field, Level Sensor***, Mosquito Filter, Peaking Filter, False Colors, Freeze Input, Aspect Markers, Center Marker, Marker Enable, Underscan, H/V Delay, Pixel-to-Pixel
		Function on F2	Ratio, Check Field, Level Sensor***, Mosquito Filter, Peaking Filter, False Colors, Freeze Input, Aspect Markers, Center Marker, Marker Enable, Underscan, H/V Delay, Pixel-to-Pixel
		Function on F3	Ratio, Check Field, Level Sensor***, Mosquito Filter, Peaking Filter, False Colors, Freeze Input, Aspect Markers, Center Marker, Marker Enable, Underscan, H/V Delay, Pixel-to-Pixel
		Function on F4	Ratio, Check Field, Level Sensor***, Mosquito Filter, Peaking Filter, False Colors, Freeze Input, Aspect Markers, Center Marker, Marker Enable, Underscan, H/V Delay, Pixel-to-Pixel
	System Information	System	vx.xx
		Keypad	vx.xx
		Module	vx.xx
		Accessory	vx.xx

* HDMI model only

** Disabled when using HDMI

*** Level Sensor Accessory needed.

MAIN MENU AND NAVIGATION



Main Menu

Access the main menu by pushing and holding the **MENU** button on the front panel of the monitor.

- Step through menu items using the **▲** and **▼** buttons.
- Choose a submenu or select a menu item by pressing **SELECT**.
- Return to the previous menu by pressing **MENU**.
- Exit the main menu by pressing **MENU**. The menu will automatically time out after 15 seconds.

VIDEO CONFIGURATION SUBMENU

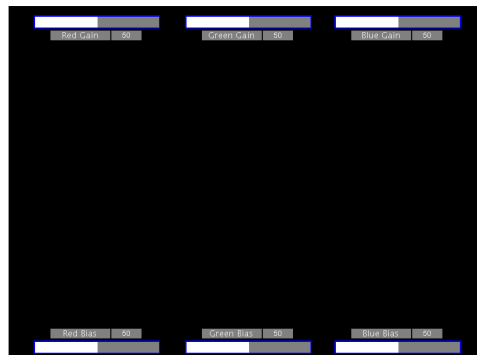


Video Configuration Submenu

■ RGB Bias and Gain

Select this submenu to fine-tune the monitor's color balance (R, G, B). This should only be done by someone experienced with video engineering, as this will alter the overall color shading of the screen. The purpose is to allow color matching to other types of monitors and/or displays. Note: The Color Temperature preset will automatically switch to USER when Color Bias settings are adjusted. It is normal for color bias adjustments to be very subtle.

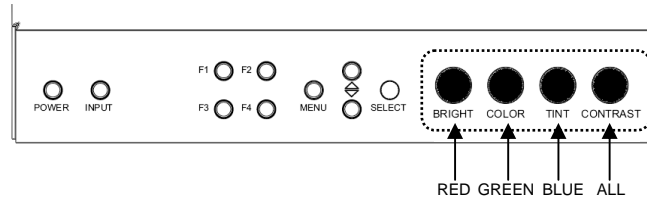
When selecting the RGB Bias and Gain submenu, gain adjustment indicators will appear at the top of the screen, and bias adjustment indicators will appear at the bottom of the screen:



RGB Bias and Gain

Use the ▲ and ▼ buttons to select each individual bias or gain control. Press SELECT to begin adjusting the control. Use the ▲ and ▼ buttons to increase or decrease the value.

Alternately, the image adjustment knobs (Brightness, Color, Tint, Contrast) can be used to easily adjust the bias and gain settings as shown below. The knobs affect whichever row of controls (gain or bias) is currently selected.



■ Check Field

Use the check field modes for monitor calibration or to analyze individual color components of an image. In Monochrome mode, all color is disabled and only a grayscale image is shown. In Blue, Green, and Red check field modes, only the selected color will be shown.

Use the following procedure when calibrating the monitor to SMPTE color bars with the following procedure:

1. Allow the monitor to warm up for at least 5-10 minutes.
2. Display SMPTE split-field color bars on the monitor using an external source.
3. Enable **Monochrome mode**.
4. Locate the pluge pattern (super black, black, and gray bars) at the lower-right corner of the screen. Adjust the **Brightness** knob until there is no visible difference between the super black and black bars, but the gray bar is still visible.
5. Adjust the **Contrast** knob until an even grayscale appears along the top bars.
6. Disable **Monochrome mode**.
7. Enable **Blue Check Field mode** and adjust the **Color** knob so that the outermost bars (white and blue) appear to match in brightness.
8. Composite NTSC only: Adjust the **Tint** knob until the third bar from the left (cyan) and the third bar from the right (magenta) appear to match in brightness.
9. Disable **Blue Check Field mode**.

■ Aspect Ratio Settings

Use to switch between 4:3 and 16:9 aspect ratios.

As the V-LCD651STX-HDA monitor has a native resolution of 1024 x 768 RGB pixels, incoming images are automatically scaled to fit the screen:

- In 4:3 mode, images are scaled to fill the entire 4:3 screen (1024x 768). With a 16:9 source, image will be stretched vertical to fill the screen.
- In 16:9 mode, images are scaled to a 16:9 portion of the screen (1024 x 576), with a black letter-box added top and bottom.



Full Screen



16:9 Mode

Note: The aspect ratio setting is ignored when Pixel-to-Pixel mode is enabled.

■ Pixel-to-Pixel Mode

Use this setting to enable Pixel-to-Pixel mode. You have the option of viewing the center 1024 x 768 (Centered Pixel-to-Pixel mode) or selecting any 1024 x 768 area on the screen (User Pixel-to-Pixel mode). The User Pixel-to-Pixel option is not available when the incoming image is 1024 x 768 or lower - only the Centered Pixel-to-Pixel mode can be used in this case.

This Pixel-to-Pixel mode bypasses the monitor's internal scaling function and displays incoming images in their native resolution and aspect ratio, with a one-to-one mapping:

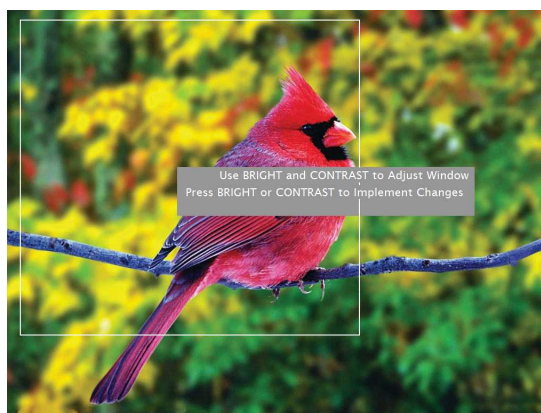
- For incoming formats smaller than the native resolution of the LCD panel (1024 x 768), the image will be displayed in the center of the screen using only the necessary LCD pixels. For example, NTSC images will occupy exactly 720 x 480 pixels. The surrounding pixels will be black.
- For incoming formats exceeding 1024 x 768 pixels, only the center 1024 x 768 of the incoming image will be displayed occupying the whole screen, with the remainder of the picture cropped. For example, 1080i formats will both be cropped to 1024 x 768 and displayed full-screen.

Note: Pixel-to-Pixel mode disables aspect ratio control and H/V Delay.

The User Pixel-to-Pixel mode is enabled in the following way:

Video Configuration	
RGB Bias and Gain	
Check Field	Off
Ratio	4:3
Pixel-to-Pixel	User
H/V Delay	Off
Underscan	Off
NTSC Black Level	7.5 IRE

1. Toggle to the User option in the Pixel-to-Pixel section of the Video Configuration Menu. Press Select.



2. Using the BRIGHT and CONTRAST knobs, select the portion of the image you would like to view with scaling turned off. The BRIGHT knob will move your selected area left and right, and the CONTRAST knob will move your selected area up and down.
3. Press the BRIGHT or CONTRAST knob to confirm your selection. The selected portion of the screen will automatically fill the display area.



■ H/V Delay

Use this setting to enable one of three delay modes (H & V Delay, V Delay, H Delay):

- In H & V Delay mode, both horizontal sync and vertical sync are delayed, resulting in both horizontal and vertical blanking periods being shown on the screen.
- In V Delay mode, vertical sync is delayed so that the vertical blanking period is displayed on screen.
- In H Delay mode, horizontal sync is delayed so that the horizontal blanking period is displayed on the screen.

■ Underscan

Use this setting to enable or disable Underscan mode:

- When Underscan is OFF, the active portion of the video signal is displayed on the screen, with 0% overscan.
- When Underscan is ON, the image size is slightly reduced. This allows the user to clearly view the edges of the active video area.

■ NTSC Black Level

Set the NTSC Black Level according to the type of NTSC composite video input:

- 7.5 IRE: Use this setting for standard NTSC-M signals which use a 7.5 IRE setup (black level).
- 0 IRE: Use this setting for NTSC-J signals which have no setup, or a black level of 0 IRE.

Note: This setting is disabled for PAL composite input and all component/HDMI formats.

MARKER CONFIGURATION SUBMENU

Marker Configuration	
Markers	On
Center Marker	Off
16:9 Marker	Off
4:3 Markers	Off
Marker Background	100%

Marker Configuration Submenu

■ Markers

Use this setting to enable or disable all on-screen markers. This setting affects the center marker, full screen markers, 16:9 markers and 4:3 markers.

■ Center Marker

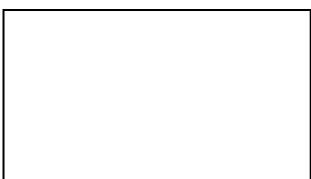
Use this setting to display a center marker on the screen.

■ 16:9 Markers

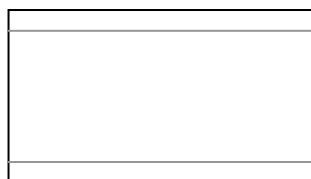
Use these settings to superimpose one of 12 markers on the screen when in Full Screen mode or 16:9 mode.

- 4:3
- 13:9
- 14:9
- 1.85:1
- 2.35:1
- 95% Safe
- 93% Safe
- 90% Safe
- 88% Safe
- 85% Safe
- 80% Safe
- User

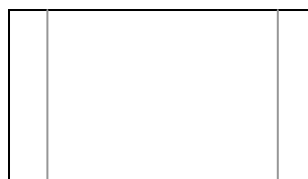
16:9 Marker Examples:



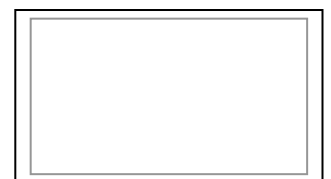
OFF (No Marker)



2.35:1 Aspect Ratio



4:3 Aspect Ratio Marker



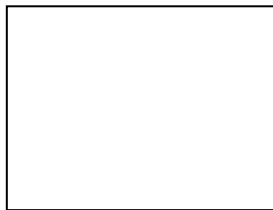
90% Safe Area

■ 4:3 Markers

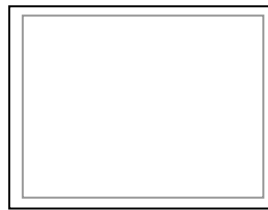
Use this setting to superimpose one of 5 markers on the screen when in 4:3 mode. This setting is disabled when the aspect ratio is set to 16:9, or when Pixel-to-Pixel, Underscan, or H/V Delay is enabled.

- 95% Safe Area
- 93% Safe Area
- 90% Safe Area
- 88% Safe Area
- 85% Safe Area
- 80% Safe Area

4:3 Marker Examples:



OFF (No Marker)



90% Safe Area

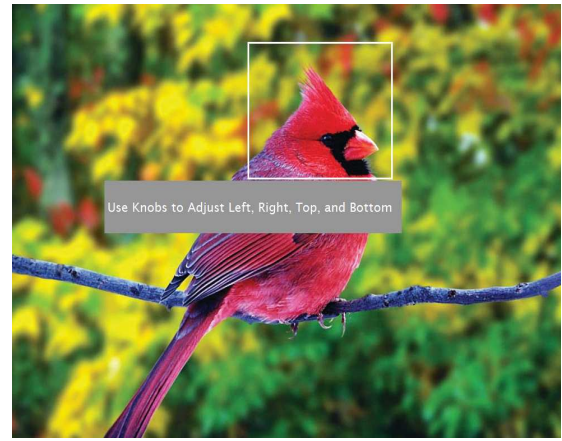
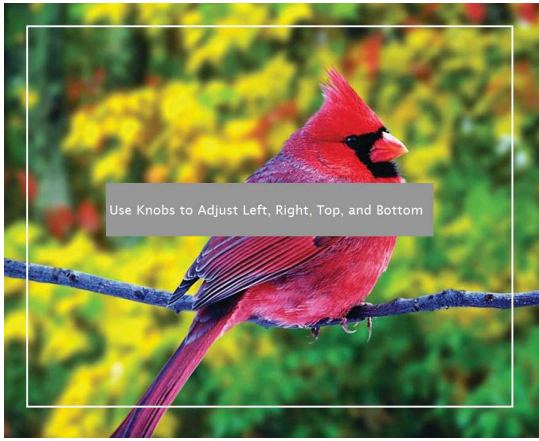
User Markers

User markers enable the user to create their own safe areas on the screen.

1. Choose the User option for your selected aspect ratio (4:3 or 16:9) in the Marker Configuration submenu and press the SELECT button. You may also begin with an already predefined safe area (95%, 93%, 90%, etc.) and make your adjustments from there by highlighting a particular safe area and pressing the SELECT button.

Marker Configuration	
Markers	On
Center Marker	Off
16:9 Marker	Off
4:3 Markers	User
Marker Background	0%

2. Use the BRIGHT, COLOR, TINT and CONTRAST knobs to move the LEFT, RIGHT, TOP and BOTTOM borders of the safe area to your desired position. When you have reached the desired location for the borders, press the MENU button. If you began the marker adjustment using one of the predefined safe areas and made an adjustment, the marker selection will automatically convert to the User marker setting.



■ Marker Background

Use this setting to choose how selected markers are displayed on the screen. :

- 0% The marker is superimposed on the complete image.
- 25% Image area beyond the marker is shown at 25% intensity.
- 50% Image area beyond the marker is shown at 50% intensity.
- 75% Image area beyond the marker is shown at 75% intensity.
- 100% Image area beyond the marker is shown at 100% intensity (black).

Example (80% Marker in 4:3 Mode):



Normal Background

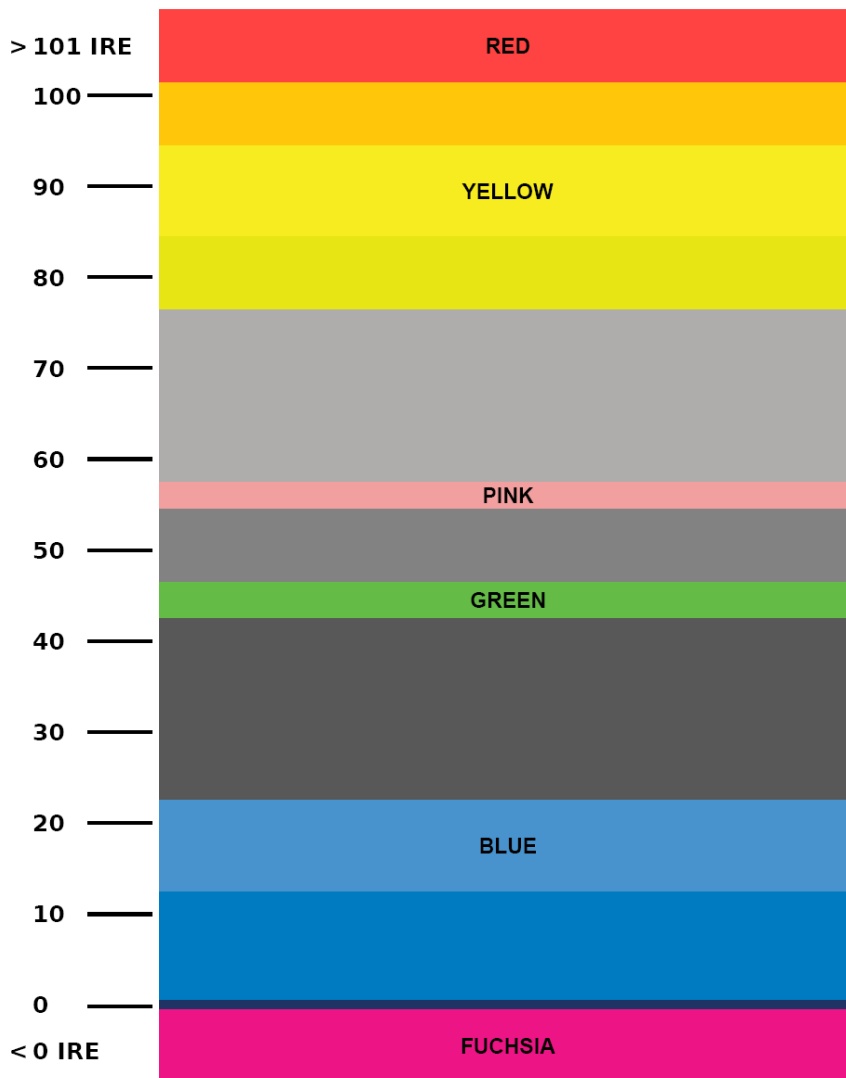


Black Background

FILTER CONFIGURATION SUBMENU

■ False Colors

The V-LCD651STX has a false color filter to aid in the setting of camera exposure. As the camera Iris is adjusted, elements of the image will change color based on the luminance or brightness values. This enables proper exposure to be achieved without the use of costly, complicated external equipment. To best utilize this feature, you must understand the color chart below and have a basic understanding of camera exposure. Normally, when shooting subjects like people, it is common practice to set exposure of faces to the equivalent of approximately 56 IRE. The false color filter will show this area as the color PINK on the monitor. Therefore, as you increase exposure (open the IRIS), your subject will change color as indicated on the chart: PINK, then GREY, then a few shades of YELLOW. Over exposed subjects (above 101 IRE) on the monitor will be shown as RED. In addition, underexposed subjects will show as DEEP-BLUE to DARK-BLUE, with clipped-blacks indicated with a FUCHSIA-like color. Lastly, the color GREEN is used to indicate elements of the image that are approximately 45 IRE. This represents a 'neutral' or 'mid-level' exposure commonly used for objects (not people).



False Color Key

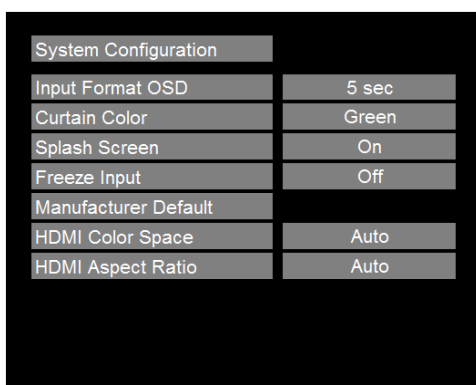
■ Peaking Filter (Focus assist)

The Peaking Filter is used to aid the camera operator in obtaining the sharpest possible picture. When activated, all color will be removed from the display and a black-and-white image will remain. The internal processor will display RED color on the screen where sharp edges appear. When the camera operator adjusts (racks) the focus control (on the camera lens), different parts of the image will have RED colored edges. This indicates that the portion of the image is sharp – or in focus. Final focus is achieved by racking the camera lens focus control back and forth until the desired portion of the image has RED colored edges. Please note that this feature is most effective when the subject is properly exposed and contains enough contrast to be processed.

■ Mosquito Filter

Use this setting to filter out “Mosquito Noise” – an artifact that appears as specs around edges of objects. This artifact is the result of video that has been compressed at some point. Video sources from DVD-Players, PDA’s, Digital Cable Boxes, Camcorders, etc. often have this artifact.

SYSTEM CONFIGURATION SUBMENU



System Configuration	
Input Format OSD	5 sec
Curtain Color	Green
Splash Screen	On
Freeze Input	Off
Manufacturer Default	
HDMI Color Space	Auto
HDMI Aspect Ratio	Auto

System Configuration Submenu

■ Input Format OSD

Use this option to enable on-screen display of input/format status in the upper-left corner of the screen.

■ Curtain Color

Use this option to change the curtain color on the monitor. This curtain color is what you see when there is no signal input to the monitor.

■ Splash Screen

Use this option to enable or disable the Marshall Electronics Inc. splash screen seen when the monitor is first powered on.

■ Freeze Input

Use the Freeze function to “freeze” the current image on the screen. Select this menu item again (Unfreeze) to return to the real-time video input.

■ Manufacturer Default

Select this menu item to reset all adjustments and menu settings to the factory default configuration.

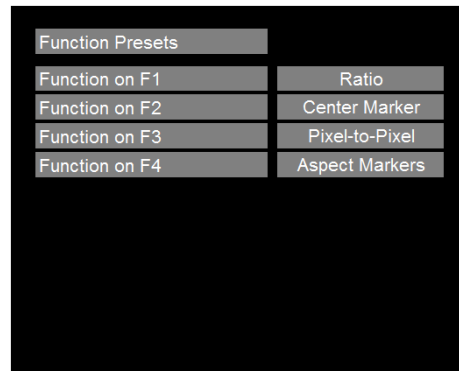
■ HDMI Color Space (V-LCD651STX-HDI Model Only)

Use this setting to automatically detect (Auto) or select the color space (RGB or YCrCb) of incoming HDMI video. This should match the color space of the video output settings on your playback device. Note that this option is disabled when viewing VESA (Computer) formats.

■ HDMI Aspect Ratio (V-LCD651STX-HDI Model Only)

Use this setting to automatically detect (Auto) the proper Aspect Ratio settings of incoming HDMI video. Most HD signals will display in the 16:9 aspect ratio. SD signals (480P/576P) will display in the 4:3 aspect ratio.

FUNCTION PRESETS SUBMENU



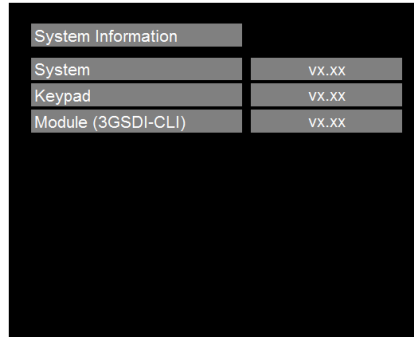
Function Presets	
Function on F1	Ratio
Function on F2	Center Marker
Function on F3	Pixel-to-Pixel
Function on F4	Aspect Markers

■ User-Definable Function Buttons

Use the **Function on F1, F2, F3 and F4** menu items to define each function button on the front panel of the monitor. The following options are available for each button:

- Ratio
- Check Field
- Level Sensor*
- Mosquito Filter
- Peaking Filter
- False Colors
- Freeze Input
- Aspect Markers
- Center Marker
- Markers
- Underscan
- H/V Delay
- Pixel-to-Pixel
- Level Sensor: Requires the Level Sensor accessory. Contact Marshall Electronics for more information.

SYSTEM INFORMATION SUBMENU



System Information	
System	vx.xx
Keypad	vx.xx
Module (3GSDI-CLI)	vx.xx

- **System**
This shows the System firmware version of your monitor.
- **Keypad**
This shows the Keypad firmware version of your monitor.
- **Module**
This shows your module version (HDMI or 3GSDI) and the firmware version of your module.

Specifications

■ PANEL

Screen Size	6.5" Diagonal
Display Area (h x v)	132.10 x 99.07 mm
Aspect Ratio	4:3 (16:9 / 4:3 Selectable)
Pixels	1024 x 768
Color Depth	18-bit (262,114 Colors)
Viewing Angle (h x v)	160° x 140° (CR >10)
Brightness	650 cd/m ²
Contrast Ratio	500:1
Dot Pitch (h x v)	0.043 x 0.129 mm
Pixel Pitch (h x v)	0.129 x 0.129 mm

■ VIDEO INPUT/OUTPUT

Video Input / Output

Supports SMPTE 170M, NTSC/PAL

YP_BPR Input / Output

Supports SMPTE 260M, 274M, 296M

HDMI Input

HDMI 1.2, VESA Graphics Modes

■ CONNECTORS

Video Input

Video	1 x BNC Female (75 Ω)
YP _B PR	3 x BNC Female (75 Ω)

HDMI Input

HDMI	1 x HDMI (Type A) Female
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Video Output (Active Loop-Through)

Video	1 x BNC Female (75 Ω)
YP _B PR	3 x BNC Female (75 Ω)

Power Input

4-Pin Male XLR

Pin 1:	GND
Pin 2:	N/C
Pin 3:	N/C
Pin 4:	+12VDC

■ ELECTRICAL

Power Consumption	1.25 Amp (Max) @ 12VDC (16W Max)
Voltage Requirement	12VDC (7VDC-20VDC)
V-PS12-5V-XLR Power Supply:	
Input	100V-240V, 1.5A, 50-60Hz
Output	12VDC, 5A, 60W Max

■ BATTERY ADAPTER

Field-Interchangeable Battery Adapter Options
(Sold Separately):

Marshall Adapter	Battery Type	Battery Voltage	Recommended Battery
CM	Canon	7.4 V	Canon BP-970G
PM	Panasonic	7.2 V	Panasonic CGA-D54
JM	JVC	7.2 V	JVC BN-V438U
SB	Sony BP	14.4 V	Sony BP-460
SM	Sony NP-Q	7.2 V	Sony NP-QM91
SL	Sony NP-F	7.2 V	Sony NP-F970

Factory Configured Battery Adapter Options:

Marshall Adapter	Battery Type	Battery Voltage	Recommended Battery
IDX	V-Mount	14.4 V	IDX E7S
AB	Anton Bauer	14.4 V	Anton Bauer Hytron 50

■ MECHANICAL

Dimensions (w x h x d): 6.96" x 6.03" x 1.95"

Additional Mounting: ¼"-20 Mounting Bracket

Weight (Monitor Only): 1.55 lbs

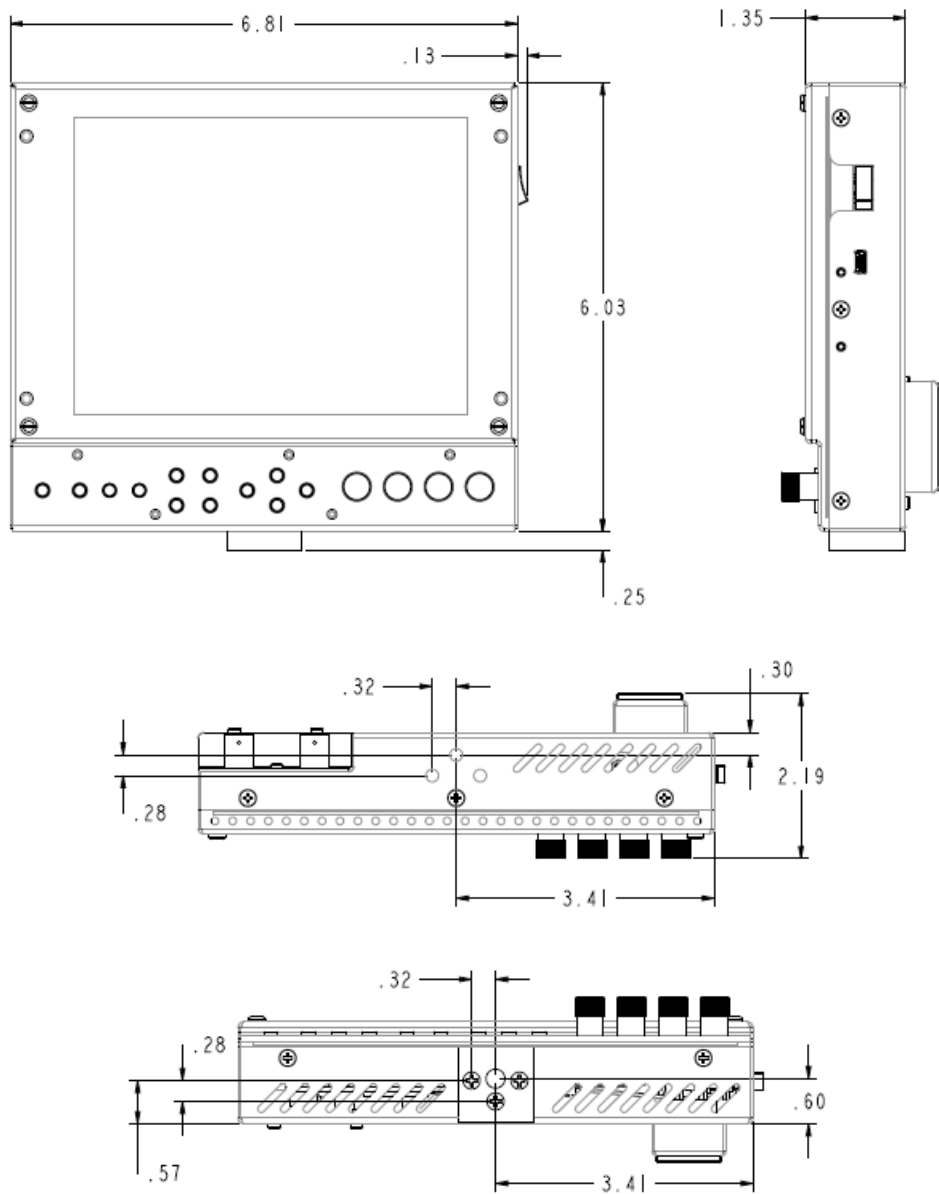
Operating Temperature 32°F to 122°F (0°C to 50° C)

Storage Temperature -4°F to 158°F (-20°C to 70° C)

RoHs

Do not dispose. Return to
Manufacturer or Authorized
Recycle Facility

Dimensions



Maintenance

■ Screen Cleaning

Periodically clean the screen surface using ammonia-free cleaning wipes (Marshall Part No. **V-HWP-K**). A clean micro-fiber cloth can also be used using only non-abrasive and ammonia-free cleaning agents. Do not use paper towels. Paper towel fibers are coarse and may scratch the surface of the polycarbonate faceplate or leave streaks on the surface. Antistatic and fingerprint resistant cleaning agents are recommended. Do not apply excessive pressure to the screen to avoid damaging the LCD.

■ Faceplate Dusting

Dust the unit with a soft, damp cloth or chamois. Dry or abrasive cloths may cause electrostatic charge on the surface, attracting dust particles. Neutralize static electricity effects by using the recommended cleaning and polishing practice.

Warranty

Marshall Electronics warrants to the first consumer that this **V-LCD651STX series** LCD monitor will, under 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. *It is considered normal for a minimal amount of pixels, not to exceed three, to fail on the periphery of the display active viewing area.* Marshall Electronics reserves the option to refuse service for display pixel failure if deemed unobtrusive to effective use of the monitor by our technicians. 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. Due to constant effort to improve products and product features, specifications may change without notice.

2010-0512

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