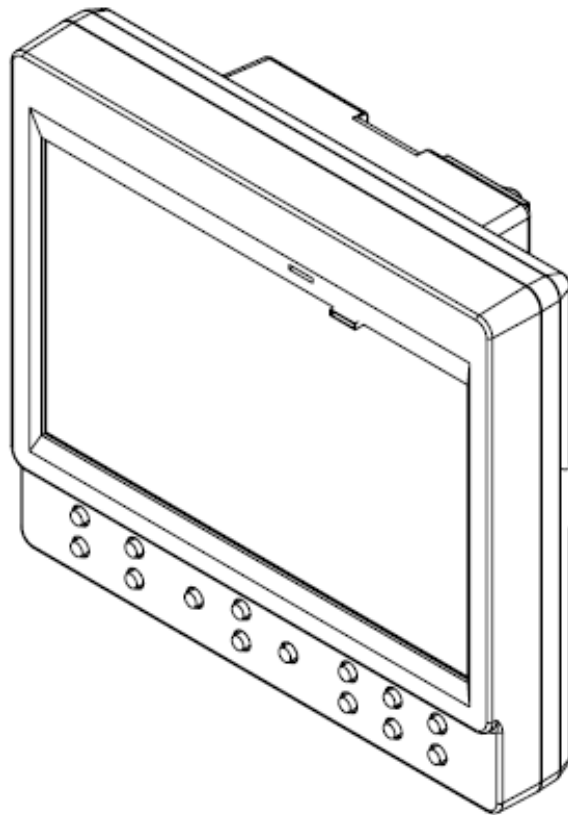# Marshall Electronics

Model No. V-LCD50-HDMI

5" Portable Field / Camera-Top Monitor

# Operating Instructions

# Product Overview

The **V-LCD50-HDMI** 5" monitor is packed with features found in more expensive models. This compact LED-backlit confidence monitor offers amazing picture performance and excellent viewing angles for users simply looking for a portable, yet versatile monitoring solution. The V-LCD50-HDMI offers standard features including a wide variety of formats and markers, 4 user-configurable front panel function buttons, RGB Check Field / Field Detect, RGB gain and bias control. Major features include Marshall's industry leading FALSE COLOR and PEAKING Filters, along with Image Flip, Freeze Frame, and HDMI Auto Color Space and Ratio detect.

The bottom 1/4"-20 mount allows this lightweight unit to be mounted to most DSLRs, cranes, and jibs.

This unit can be battery-powered in the field using four AA rechargeable or alkaline batteries or the included power supply.

**Note:** Under continuous operation, alkaline batteries will become hot to the touch. This is normal and does not indicate any material defect. Please keep batteries and other small objects away from children.
Use of rechargeable batteries is *highly* recommended.

# Features

- **1.2 MegaPixel 5" Panel**
  The V-LCD50-HDMI features an all-digital TFT-MegaPixel active matrix LCD system with 1.2 million pixels. The LCD panel features a brightness of 300 cd/m$^2$ and a contrast ratio of 600:1 making the display ideal in a variety of environments and lighting conditions.

- **Image Flip**
  Vertical image flip allows for flexibility in mounting the monitor in many positions.

- **Multi-Format Compatibility**
  The V-LCD50-HDMI accommodates digital video inputs and standard VESA formats. Acceptable formats range from 480P/576P to 1080i60.

- **End-to-End Digital Signal Processing**
  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, blue-only mode, and monochrome mode are a few of the advanced features which make the V-LCD50-HDMI 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.

- **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 and more.

# Installation and Initial Setup

■ **Unpacking**

Carefully unpack the V-LCD50-HDMI  monitor and verify that the following items are included:

- V-LCD50-HDMI Monitor
- V-PA5V-2.0A-xx Power Supply
- Hot Shoe Adaptor
- Quick Start Guide
- Operating Instructions on CD
- 4 AA Alkaline Batteries

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 Monitor Features
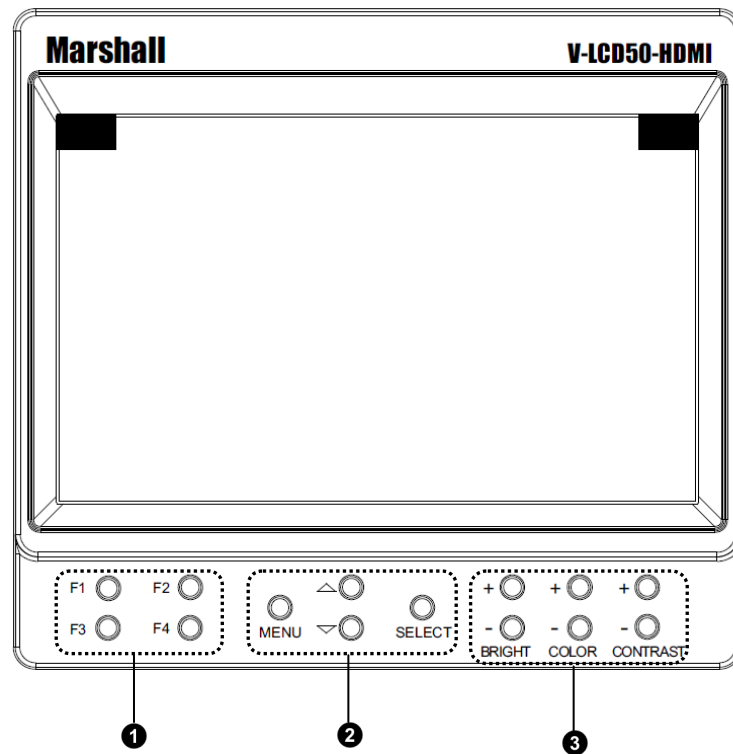


❶ **User-Definable Function Buttons**
    Four user-definable function buttons can be used for
    direct access to various settings. Functions are
    assigned using the on-screen menu.

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

❸ **Image Adjustment Buttons**
    Use the image adjustment buttons 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.

# Rear Monitor Features
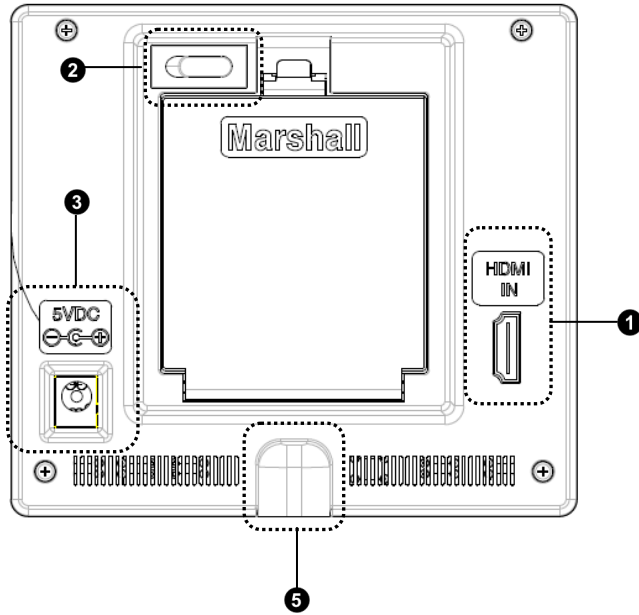


**❶ HDMI Input**
The V-LCD50-HDMI has a single HDMI input.
Signal formats and frame rates are automatically
detected and displayed on the screen.

**❷ Power Switch**
Use the hard power switch to supply power to the
monitor.  The power switch draws power from either
the 5 VDC input or the battery compartment.  If both
power inputs are live, the monitor will draw power
from the 5 VDC input to preserve battery life.
Battery life can also be preserved by setting this
switch to the OFF position when the monitor is not in
use.

**❸ Power Input**
Connect 5VDC to the coax 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 5 Volts.

IMPORTANT: If using a power source other than the
included power supply, be sure that the polarity of
the DC input is correct:
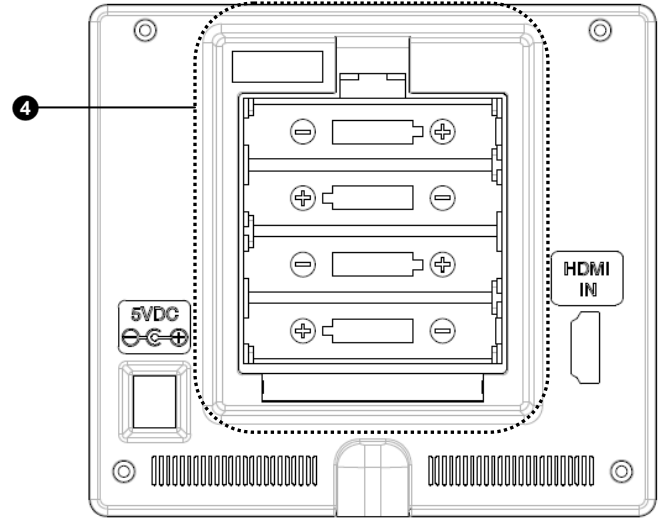
**❹ Battery Compartment**
The V-LCD50-HDMI can be powered with four (4)
AA rechargeable or alkaline batteries. The
orientation of the batteries should be as shown in
the image above.

When batteries reach the end of their run time, video
on the screen will begin to flash.  This is normal
operation and indicates that the batteries in use
should be replaced.

**Note:** Under continuous operation, alkaline batteries
will become hot to the touch.  This is normal and does
not indicate any material defect.  Please keep batteries
and small objects away from small children.  Use of
rechargeable batteries is *highly* recommended.

**❺ ¼-20 Mounting Hole**
Use the ¼-20 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-LCD50-HDMI monitors:**

### 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)

### 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 /  75 Hz)
1280 x 1024 (60 Hz / 75 Hz)

# On Screen Menu

| | | | |
|---|---|---|---|
| **Main Menu** | **Video Configuration** | **Color Temperature** | D65, D55, Linear, User, D93 |
| | | **RGB Bias and Gain** | R, G, B Bias (0-100) / R, G, B Gain (0-100) |
| | | **Check Field** | Off, Mono, Blue, Green, Red |
| | | **Ratio** | Full Screen, 4:3, 16:9 |
| | | **Pixel-to-Pixel** | Off, On |
| | **Marker Configuration** | **Marker Enable** | 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 |
| | | **Full Screen Markers** | Off, 95% Safe, 93% Safe, 90% Safe, 88% Safe, 85% Safe, 80% Safe |
| | | **4:3 Markers** | Off, 95% Safe, 93% Safe, 90% Safe, 88% Safe, 85% Safe, 80% Safe |
| | | **Marker Background** | 100%, 75%, 50%, 25%, 0% |
| | **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, Black, Green |
| | | **Splash Screen** | On, Off |
| | | **Contrast/Backlight** | Contrast, Backlight |
| | | **Freeze Input** | Off, On |
| | | **Image Flip** | Off, On |
| | | **Manufacturer Default** | Select |
| | | **HDMI Color Space** | Auto, YCbCr, RGB |
| | | **HDMI Aspect Ratio** | Manual, Auto |
| | **Function Presets** | **Function on F1** | Ratio, Check Field, Image Flip, Mosquito Filter, Peaking Filter, False Colors, Freeze Input, Aspect Markers, Center Marker, Marker Enable, Pixel-to-Pixel |
| | | **Function on F2** | Ratio, Check Field, Image Flip, Mosquito Filter, Peaking Filter, False Colors, Freeze Input, Aspect Markers, Center Marker, Marker Enable, Pixel-to-Pixel |
| | | **Function on F3** | Ratio, Check Field, Image Flip, Mosquito Filter, Peaking Filter, False Colors, Freeze Input, Aspect Markers, Center Marker, Marker Enable, Pixel-to-Pixel |
| | | **Function on F4** | Ratio, Check Field, Image Flip, Mosquito Filter, Peaking Filter, False Colors, Freeze Input, Aspect Markers, Center Marker, Marker Enable, Pixel-to-Pixel |
| | **System Information** | **System** | *vx.xx* |

*Main Menu*
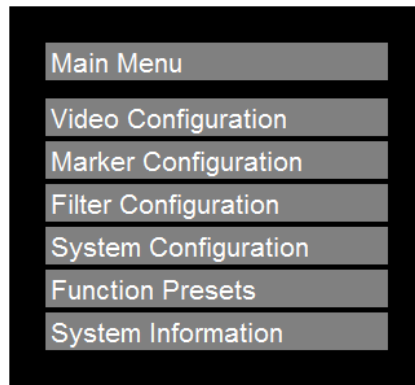
Access the main menu by pushing and holding the **MENU** button on the front panel of the monitor.
•Step through menu items using the ▲ and ▼ buttons.
•Choose a submenu or select a menu item by pressing **SELECT**.
•Return to the previous menu by pressing **MENU**.
•Exit the main menu by pressing **MENU**. The menu will automatically time out after 15 seconds.

## VIDEO CONFIGURATION SUBMENU
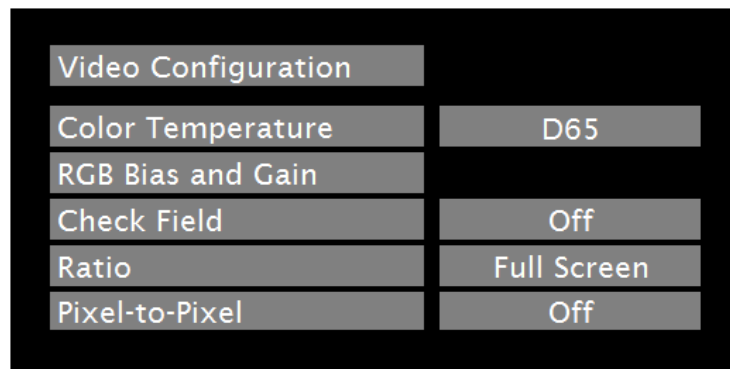


*Video Configuration Submenu*

■ **Color Temperature**
Use this setting to choose one of three color temperature presets:

• D55 (5500K)
• D65 (6500K)
• D93 (9300K)
• USER (Adjustable Color Bias and Gain)
• Linear (No processing is applied to the panel)

## ■ 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:
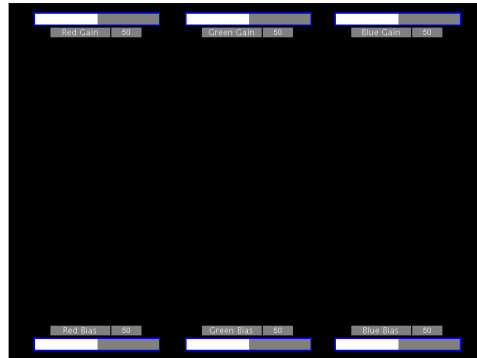


*RGB Bias and Gain*

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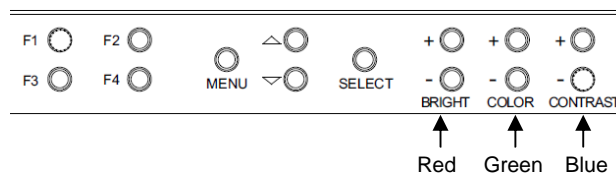


## ■ Check Field

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.

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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.    Disable **Blue Check Field mode**.

## ■ Ratio

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

As the V-LCD50-HDMI monitor has a native resolution of 800 x 480 RGB pixels, incoming images are automatically scaled to fit the screen:

• In Full Screen mode, images are scaled to fill the entire screen (800 x 480).

• In 4:3 mode, images are scaled to fill the center 4:3 portion of the screen (640 x 480).  With a 16:9 source, images will be centered with a black letter-box added on the left and right sides.

• In 16:9 mode, images are scaled to a 16:9 portion of the screen (800 x 450), with a black letter-box added top and bottom.

|  |  |  |
|---|---|---|
| Full Screen | 4:3 Aspect Ratio | 16:9 Aspect Ratio |
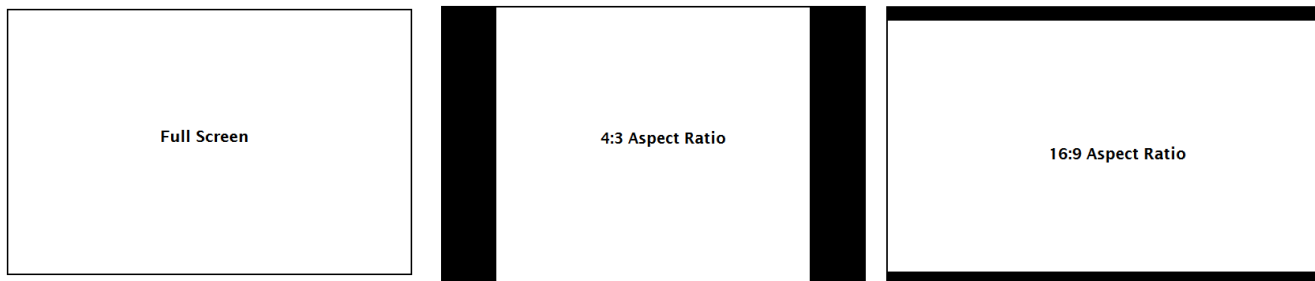
Note: The aspect ratio setting is ignored when Pixel-to-Pixel mode is enabled.

## ■ Pixel-to-Pixel Mode

Use this setting to enable Pixel-to-Pixel mode.  You have the option of viewing the center 800 x 480 (Centered Pixel-to-Pixel mode) or selecting any 800 x 480 area on the screen (User Pixel-to-Pixel mode).  The User Pixel-to-Pixel option is not available when the incoming image is 800 x 480 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 (800 x 480), 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 800 x 480 pixels, only the center 800 x 480 of the incoming image will displayed occupying the whole screen, with the remainder of the picture cropped. For example, 1080i formats will both be cropped to 800 x 480 and displayed full-screen.

## MARKER CONFIGURATION SUBMENU

| Marker Configuration | |
|---|---|
| Marker Enable | On |
| Center Marker | Off |
| 16:9 Markers | 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.
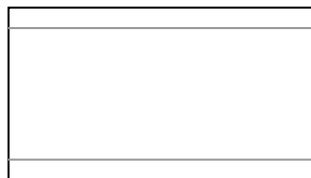
### ■ 16:9 Markers

Use these settings to superimpose one of 12 markers on the screen when in 16:9 mode. This setting is disabled when the aspect ratio is in Full Screen or 4:3 mode.

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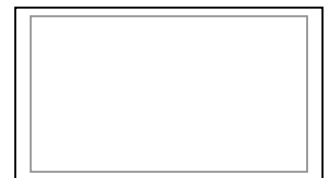- 80% Safe

**16:9 Marker Examples:**

OFF (No Marker)      2.35:1 Aspect Ratio      4:3 Aspect Ratio Marker      90% Safe Area

■ **Full Screen Markers**

Use this setting to superimpose one of 7 markers on the screen when in Full Screen mode.  This setting is disabled when the aspect ratio is set to 16:9 or 4:3.

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

**Full Screen Marker Examples:**

*OFF (No Marker)*

*90% Safe Area*

■ **4:3 Markers**

Use this setting to superimpose one of 7 markers on the screen when in 4:3 mode.  As with the other modes, this setting is disabled when the aspect ratio is set to Full Screen or 16:9, or when Pixel-to-Pixel.

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

■ **Marker Background**

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

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

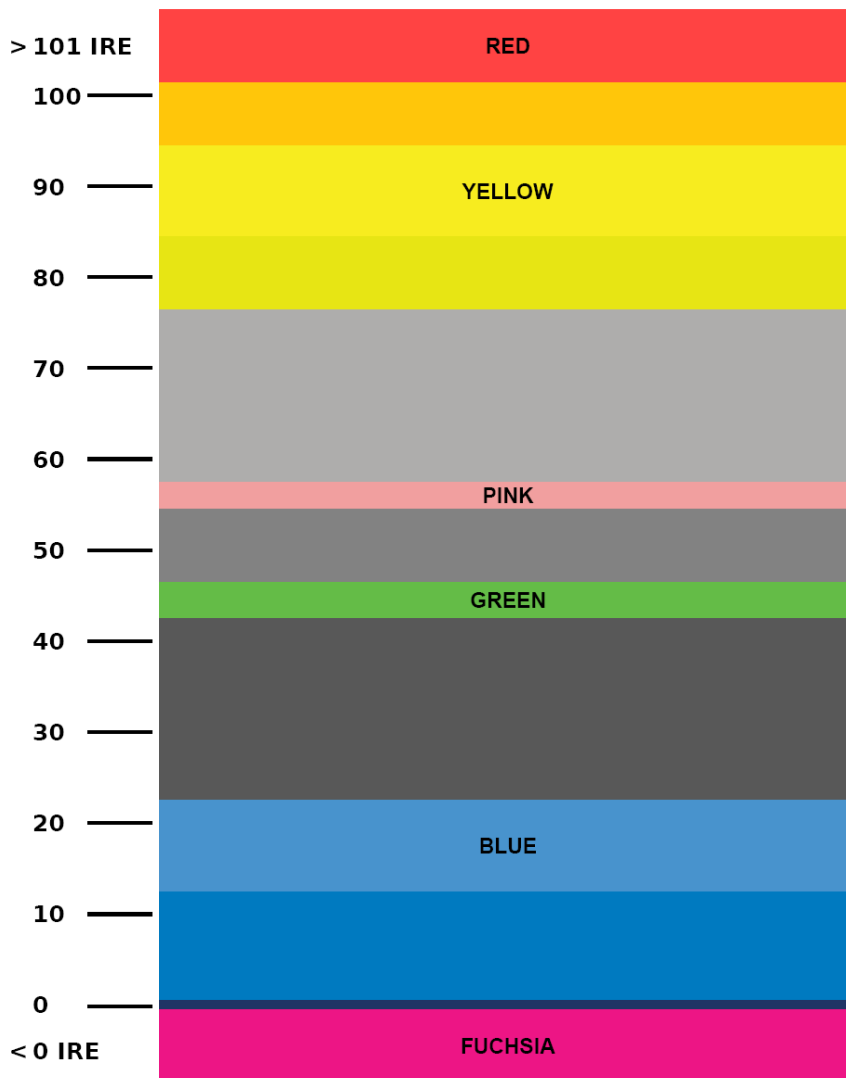**Example (80% Marker in 4:3 Mode):**
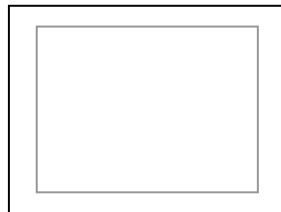
*100% Background*

*0% Background*

■ **False Colors**

The V-LCD50-HDMI 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).

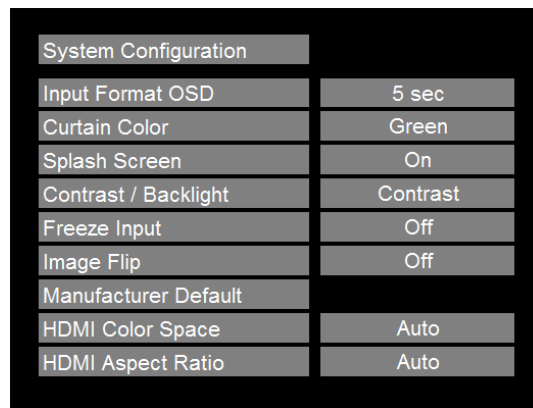| IRE | Color |
|-----|-------|
| > 101 IRE | RED |
| 100 | |
| 90 | YELLOW |
| 80 | |
| 70 | |
| 60 | |
| | PINK |
| 50 | |
| | GREEN |
| 40 | |
| 30 | |
| 20 | BLUE |
| 10 | |
| 0 | |
| < 0 IRE | FUCHSIA |

*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 |
| Contrast / Backlight | Contrast |
| Freeze Input | Off |
| Image Flip | 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.

■ **Contrast / Backlight**

Use this feature to choose between controlling the Contrast of the image or the intensity of the panel's Backlight with the CONTRAST knob on your monitor.  **Note:** While the Contrast control moves up and down at intervals of 1, the Backlight control will move up and down at intervals of 2, from 0-100.

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■ **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.

■ **Image Flip**
Use the Image Flip function to turn the monitor's display 180°. **Note:** Both the image and all menus and On Screen Display text will be flipped.

■ **Manufacturer Default**
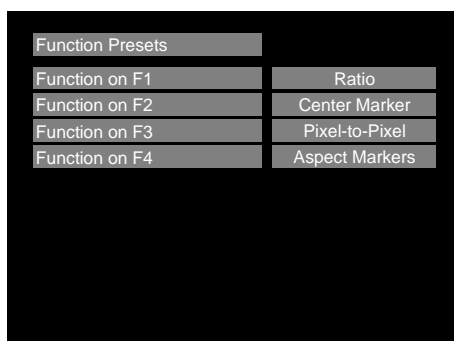Select this menu item to reset all adjustments and menu settings to the factory default configuration.

■ **HDMI Color Space**

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**
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
- Image Flip
- Mosquito Filter
- Peaking Filter
- False Colors
- Freeze Input
- Aspect Markers
- Center Marker
- Marker Enable
- Pixel-to-Pixel

## SYSTEM INFORMATION SUBMENU

| System Information | |
|---|---|
| System | vx.xx |
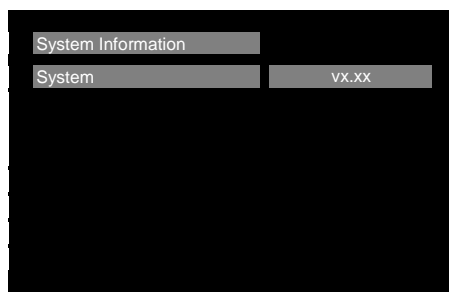
■ **System**
This shows the System firmware version of your monitor.

# Specifications

- **PANEL**

| | |
|---|---|
| Screen Size | 5.0" Diagonal |
| Display Area (h x v) | 108.0 x 64.8 mm |
| Native Aspect Ratio | 15:9 |
| Pixels | 800 x 480 |
| Viewing Angle (h x v) | 85° x 85° |
| Brightness | 300 cd/m$^2$ |
| Contrast Ratio | 600:1 |
| Pixel Pitch (h x v) | 0.135 x 0.135 mm |

- **VIDEO INPUT/OUTPUT**

**HDMI Input**
HDMI, VESA Graphics Modes

- **CONNECTORS**

**HDMI Input**
HDMI                    1 x HDMI (Type A) Female

**Power Input**
Coaxial Power Connector
Outer Diamater / Inner Diameter: 5.5 x 2.5 mm

- **ELECTRICAL**
Power Consumption 1.25 Amp  @ 5VDC (6.25W Max)
Voltage Requirement    5 DC (5V DC-12V DC)

V-PA5V-2.0A-xx:
    Input                    100V-240V, 0.3A, 50-60Hz
    Output                   5VDC, 2.0A, 10W Max

- **BATTERY COMPARTMENT**

Uses Four AA Batteries (Alkaline Included)
*Use of Rechargeable batteries is *highly* recommended

- **MECHANICAL**

| | |
|---|---|
| Dimensions (w x h x d): | 4.86" x 4.40" x 1.84" |
| Additional Mounting: | ¼"-20 Mounting Bracket |
| Weight (Monitor Only): | .52 lbs (Without Batteries) |
| Operating Temperature | 32°F to 104°F (0°C to 40°C) |
| Storage Temperature | -14°F to140°F (-10°C to 60°C) |
| RoHs | Do not dispose. Return to Manufacturer or Authorized Recycle Facility |

**Note:** Under continuous operation, alkaline batteries will become hot to the touch.  This is normal and does not indicate any material defect.  Please keep batteries and other small objects away from children.
Use of rechargeable batteries is *highly* recommended.

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# Dimensions
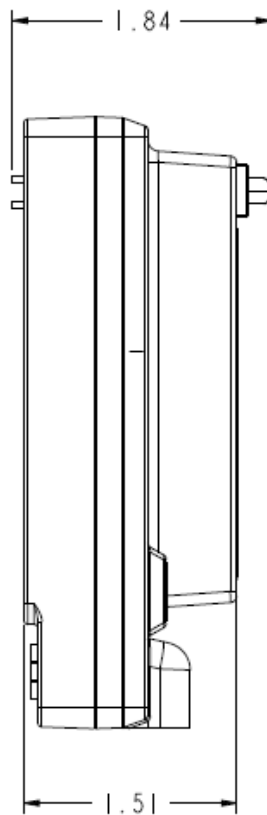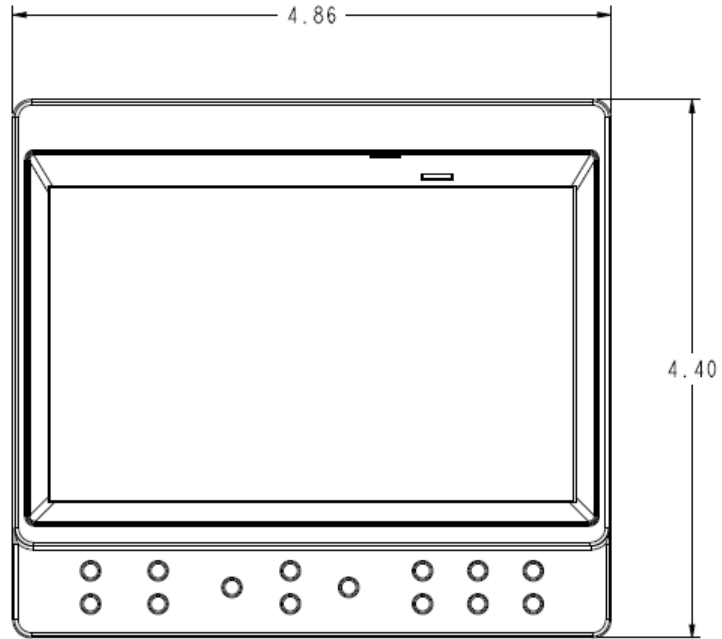
# Maintenance

- **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 warranties to the first consumer that this **V-LCD50-HDMI 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.

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