



**-16:9 Marker** Frame Aspect Markers appear as RED lines that are used to frame the image for an additional screen format when 16:9 display is enabled. For example 4:3 marker is often used for HD broadcasts that are also down converted and cropped for SD transmission. Frame markers are available for 4:3, 15:9, 14:9, 13:9, 1.85:1, 2.35:1 and 2.37:1 screen aspects.



**-Safe Area** Primarily used with Character Generator or CGI to identify the area of the screen that will not be blanked by the overscan of consumer TV sets. Select between choices of 93%, 90%, 88%, or 80% of the active picture area. Please note that the screen of the V-R171P-AFHD has been factory adjusted to display 100% of the active picture.



**Display Scale Menu** - Scaling is the process whereby the image is enlarged or reduced to fit on the screen.

As the native LCD displays of the V-R171P-AFHD are 1280 pixels wide by 768 pixels high, it is often necessary to change the size of the image to fill the whole screen.

**Pixel to Pixel** mode bypasses the enlargement/shrink of this scaling function and displays the native incoming format. *Zoom and Underscan are disabled.*

**For 525-NTSC/480P based images**, pixel to pixel will appear as a 640 pixels wide by 576 pixels high (4:3 aspect) or 720 pixels wide by 480 pixels high (16:9 aspect).

**For 625-PAL/576P based images**, pixel to pixel will appear as a 640 pixels wide by 576 pixels high (4:3 aspect) or 720 pixels wide by 576 pixels high (16:9 aspect).

**For 720 line HD based images**, pixel to pixel will appear as a 1280 pixels wide by 720 pixels high (16:9 aspect) with displaying native resolution.

**For 1080 line HD based images**, pixel to pixel will appear as cropped 1280 pixels wide by 768 pixels high (15:9 aspect) starting from the center of the image

#### Zoom Area

will program the zoom enlargement value, 64%, 36%, 16% that will be enabled with the ZOOM button.

#### Underscan (Not Available for HD and PC Signals)

Displays scaled images without vertical and horizontal blanking applied. This function can only be used with Standard definition signals. SDI signals will display all data input with ancillary data appearing to the right of the image.

#### OSD On/Off

Activates continuous On Screen Display for status and input format.

#### Adjusting to SMPTE or split field color bars.

1. Allow monitor to warm up for 5-10 minutes minimum. Adjustments will not be accurate on a cold monitor.
2. Display SMPTE color bars on monitor. Turn on Mono
3. Find the PLUGE (superblack, black, and gray bars) at the lower right of the pattern. Adjust BRIGHTNESS control until there is no difference visible between the superblack and black bars, but a difference is visible between the black and gray bars.
4. Adjust CONTRAST control to achieve a balanced gray scale across top bars.
5. Turn off Mono then turn on BLUE GUN
6. Turn up CHROMA (color level) control until the two outermost bars (white and blue appear to match in brightness).
7. NTSC Only - Adjust COLOR PHASE (tint or hue) control until the third bar from the left (cyan) and the third bar from the right (magenta) appear to match in brightness.

## 10 Warranty

Marshall Electronics warranties to the first consumer, that this **V-R171P-AFHD** inch LCD rack mounted 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 purchasing end user 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 you.

This warranty does not apply to product exterior and cosmetics. Misuse, abnormal service or handling, improper alterations or modifications in design or construction, voids this warranty. No sales personnel of the seller, nor 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.

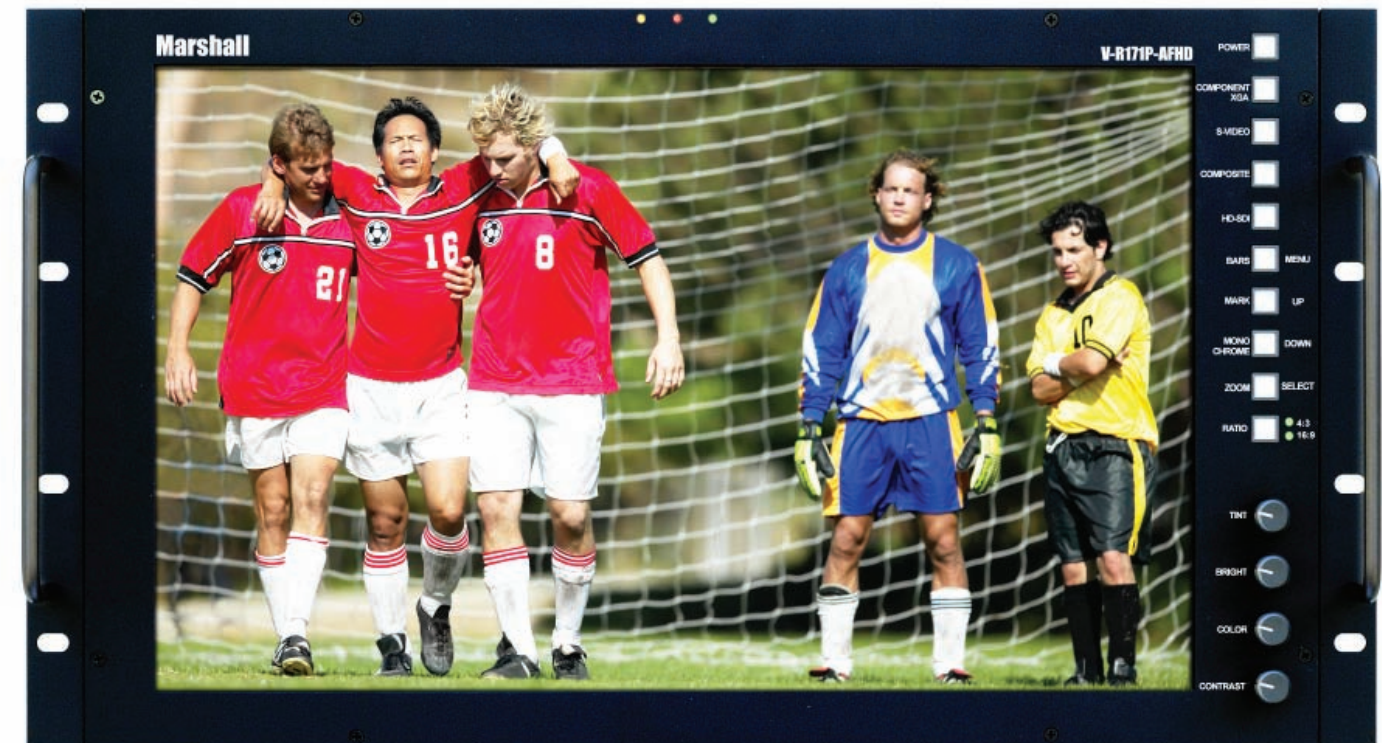
An extra note about LCD displays: It is considered normal for a minimal amount of pixels, not to exceed three, to fail on the periphery of the display active viewing area. Marshall Electronics has the option to reserve service for display pixel failure if deemed unobtrusive to effective use of the monitor by our technicians.

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

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## V-R171P-AFHD Users Guide



Product Overview	1
Features	2
Electrical Specifications	3
Mechanical Specifications	4
Operational Setup	5
Optional Accessories	6
Connectors	7
Switch Settings, Adjustments and Indicators	8
Advanced Menu Functions	9
Warranty	10

## 1 Product Overview

Occupying only 6 SRU and weighing just 12 pounds, the **V-R171P-AFHD** features our Completely Digital TFT-Megapixel™ system and can display high definition images on the LCD/TFT screen with 2.95 million pixels. Analog signals are digitized using an advanced 10 bit process with over sampling and adaptive 5 line comb filter. Images are scaled to fit on screen in the highest resolution using a state of the art LSI that incorporates adaptive pixel interpolation and precision Gamma correction. Additional features include, Pixel-to-Pixel™ native resolution scaling, Color Temperature adjustment, Motion Compensation, setup memory, Frame Marker Overlays, Blue Gun, and direct access for all adjustment and selection functions The V-R171P-AFHD has been designed for field and studio applications with a rugged, all metal enclosure.

## 2 Features

- **Native display** for 720P, and 480i images
- **TFT-MegaPixel™** totally digital end to end signal processing
- 23ms pixel response measured worst case black to white to black
- 180 degree viewing angle in all directions
- Multiple format acceptance for virtually any analog or digital video signal
- Display PC Signals to XGA 1024x768
- Frame Marker Screen Overlay with cursor and safe area
- **ColorMatch Conversion™** with SMPTE/EBU color space emulation of CRT
- 98% SMPTE/EBU Color Gamut
- Color temperature presets for D75, D65, D55
- **HyperProcess™** motion interpolation of interlace images
- On screen display of input status, formats, and menu functions
- **Pixel to Pixel™** native resolution display
- Lightweight – 75% lighter than CRT models
- Settings memory restores active state with power off/on cycle
- Direct front panel selection of all functions
- Blue Gun for adjustment to SMPTE color bars
- Includes V-PS12-5V1 Universal power supply (U.L. class 2)
- Three LEDs (Red, Green, Amber) produce 7 different tally indications

### Superb Imaging

- Native HD-720P, 1280 H x 768V wide screen (2.95 million total RGB pixels)
- 16.7 Million Colors
- CRT style viewing angle - 180° in any direction.
- Bright 450 candelas per square meter (cd/m²) luminance
- Ultra high 500:1 contrast ratio with response rates less than 23 milliseconds
- All video formats are scaled to fit on screen in the highest resolution using a state of the art LSI with proprietary embedded program ming that incorporates 4x4 pixel interpolations with precision Gamma correction to produce the best images available.
- Calibrated to SMPTE specifications for Color Temperature and Gamma

### Display Multiple Screen Formats and Frame Rates

- 525 –60i / 625 - 50i - SDI & Analog Composite, Component, Y/C Interlaced with automatic NTSC/PAL system detection
- 720 x 486P -Analog Component Progressive
- 720 x 576P -Analog Component Progressive
- 720 x 1280 - 23.973P, 24P, 25P, 29.97P, 30P, 59.94P, 60P Analog Component and HDSDI Progressive
- 1035 x 1920 - 59.94i, 60i Analog Component and HDSDI Interlaced
- 1080 x 1920 – 50i, 59.94i, 60i / 23.973Psf, 24Psf, 25Psf, 29.97Psf, 30Psf in Analog Component and HDSDI signal formats

### Signal Input Flexibility

- HDSDI (SMPTE292M/294M/296M) With reclocked and shaped output
- SDI (SMPTE259M) (ITR-U601) With reclocked and shaped output
- Component Analog High Definition YPrPb (SMPTE274M,/295M,/296M)
- Component Analog Standard Definition (SMPTE/EBU N-10))
- Composite PAL/NTSC (ITU-R BT.470/SMPTE170A) with active loop out
- Y/C (S-Video) with active loop out
- Computer VGA to WXGA
- All analog signals have AGC
- Analog signals are digitized using an advanced 10 bit process on each signal path with 4x over sampling and adaptive 5 line comb filter with exacting color space conversion.

### On Screen Frame Markers in 16:9 Mode

- Center Frame Mark (Black plus White Super Imposed)
- Active Area Marker (Black plus White Super Imposed)
- 4:3, 13:9, 14:9, 15:9, 1.85:1, 2.35:1 (Red Plus Black marks)

### Monochrome Mode

- Luma only checks for lighting, Bright and Contrast adjustment, etc.

### Blue Gun

- Adjust color settings to SMPTE color bars

### Zoom Function

- Use for screen center camera focus. 4 Zoom modes are available

### Pixel to Pixel Mode

- Bypass of screen scaling functions with exact mapping of input pixels to the display. Maximum of 1280 x 768 pixels mapped.

## 9 Advanced Menu Functions

Main Menu – Use **UP/DOWN** to maneuver. Activate the desired function by pressing **SELECT**.

Functions in RED are not accessible based upon source selection or feature conflicts.

The example to the left has motion control RED or disabled due to selection of a Progressive Video or VGA source.

```

Color temperature: USER
Motion control: Line 2x
Load Setting: 1
Save as Setting: 1
Display graphics menu
Display scale menu
OSD: On
    
```

Color Temperature - Move cursor to this function then press select.

(Control indication will show as arrows)

Use UP/DOWN to cycle through presets of **D55, D65, D75, or USER**

**SELECT** the desired function to set.

Exit by pressing **MENU**.

```

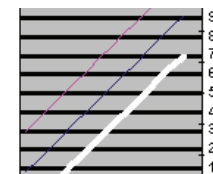
Gain:
▶R=+20
G=+20
B=+21

Offset:
R=0
G=0
B=0
    
```

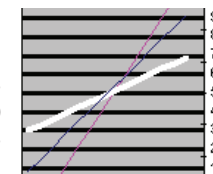
When **USER** color temperature is selected, the color balance **RGB Gain and Offset** adjustments will be enabled.

Use **UP/DOWN/SELECT** to access the desired adjustment parameter.

Left Line= Increase of Gain  
Center Line = D65 (Default)  
Right Line = Decrease of Gain



Right Line= Increase of Bias  
Center Line = D65 (Default)  
Left Line = Decrease of Bias



```

Color temperature: USER
Motion control: Line 2x
Load Setting: 1
Save as Setting: 1
Display graphics menu
Display scale menu
OSD: On
    
```

Use **MOTION CONTROL** to select one of three possible interpolation methods for Interlace images. Interlace Images must be converted to Progressive for display on the LCD screen.

*This function is not available for Progressive images.*

**-Line 2x** will perform an intra-field interpolation by line doubling.

**-1+1** will perform an inter-field interpolation assembling field 1 and field 2 into a single progressive frame.

**-1+0** will perform interpolation based upon adjacent field pixel information

```

Load Setting: 1
Save as Setting: 1
    
```

Five user defined set-ups may be stored

Use the **Save as Setting** to store user memory 1-5

USE **Load Setting** to recall user memory 1-5

```

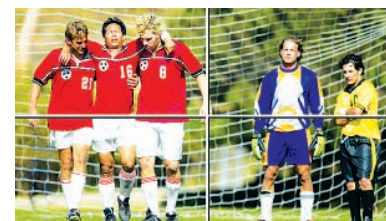
Display scale menu
▶Pixel to pixel: Off
Zoom area: Off
    
```

Set the functions enabled for the MARK Toggle On/Off button with the Display Graphics menu.

```

Load Setting: 1
Save as Setting: 1
▶Display graphics menu
▶Center cursor: Off
16:9 Marker: 4:3
Safe area: Off
Display scale menu
OSD: On
    
```

### Display Graphics Menu



**-Center Cursor** will place a cross hair cursor on the middle of the screen. The lines of the cross hair consist of a center white element that is 4 pixels wide, surrounded by a black border on each side that is 2 pixels wide. Use of black and white for the Center Cursor function allows the viewer to see screen center in all ranges of color for the screen image.

## 6 Optional Accessories

Sun Hood	V-H900		Use for viewing in bright lighting or outdoors
Power Adapter Cable	V-PAC-D		Use with Anton Bauer D-type connection
Power Adapter Cable	V-PAC-XLR		Use with 4 Pin XLR connections
Battery Adapter	V-DV-PWR1		Uses 2 Sony DVCam/HDV FP-Type batteries. When used with monitor power supply, can charge batteries plus operate monitor
V-mount to Anton Bauer adapter	V-ABA-01		Use to power Marshall Electronics monitors that have V-Mount plate with Anton Bauer Gold Mount battery.
Sequential 2 channel charger	IDX-VL-2Plus		2-channel sequential charger with a built-in 60W power supply. Charges 2 ENDURA E series batteries in fewer than 5 hours. One 10' XLR cable included. Weighs only 2 lbs
Sequential 4 channel charger	IDX-VL-4		Economically charges 4 ENDURA E series batteries in under 6 hours using Full Power Charge (FPC) method
Simultaneous 4 channel charger	IDX-VL-4S		Charges 4 ENDURA E series batteries in 2.5 hours or less
55 W Lithium Battery	IDX-E7S		V-Mount battery pack with 3 LED power Indicator
55 W Lithium Battery with Power Link	IDX-E7		V-Mount Battery Pack with PowerLink includes accurate Power Status Display and supports Digi-View
82 W Lithium Battery	IDX-E10S		V-Mount battery pack with 3 LED power Indicator
82 W Lithium Battery with Power Link	IDX-E10		V-Mount Battery Pack with PowerLink includes accurate Power Status Display and supports Digi-View
Digital to Analog Converter	BC-0301-10		Converts SDI to analog Composite
Mounting Plate	VP-LCD70-TMB-02		Attaches to any side for mount to 1/4-20 threaded component
Cleaning Wipes	V-HWP-K		Package of 10 non-toxic, antistatic, alcohol and ammonia free cleaning wipes.

TABLE-1

Analog Component High Definition Video, Standard Definition Video or Computer VGA to UGA Connector - Pin Assignment In and Out

Signal Type	HD Analog color difference YPbPr	SD Analog color difference Y, R-Y, B-Y	HD or SD Analog RGB (Sync on Green)	VGA to UXGA
Pin1	Pr	R-Y	Red	Red
Pin 2	Y	Y	Green	Green
Pin3	Pb	B-Y	Blue	Blue
Pin4				
Pin5				
Pin6	Ground	Ground	Ground	Ground
Pin7	Ground	Ground	Ground	Ground
Pin8	Ground	Ground	Ground	Ground
Pin9				
Pin10				
Pin11				
Pin12				
Pin13				H Sync
Pin14				V Sync
Pin15				

TABLE-2 / YPbPr/RGB Analog Component and Composite Video Systems Supported by the V-R171P-AFHD

Signal	Frames per Second	Aspect	Active Lines	Scanning Method
525-60i	30/29.97	4:3/16:9/15:9	483	Interlaced
625-50i	25	4:3/16:9/15:9	576	Interlaced
480P(720x480)	50/60/59.94	15:9/16:9	480	Progressive
1280x720P	60/59.94/50	15:9/16:9	720	Progressive
1920x1035	30/29.97	4:3/16:9/15:9	1035	Interlaced
1920x1080	30/29.97/25	4:3/16:9/15:9	1080	Interlaced
1920x1080	30/29.97/25/24/23.97	4:3/16:9/15:9	1080	Progressive

Computer Display Systems Supported by the V-R171P-AFHD

Standard	Resolution (Frequency)
SVGA	800 x 600 (60 , 75 ,85 Hz)
XGA	1024 x 768 (60 ,75 ,85 Hz)
SXGA	1280 x 960 (60 Hz)

TABLE-3 / HDSDI/SDI Input BNC Connector Signals

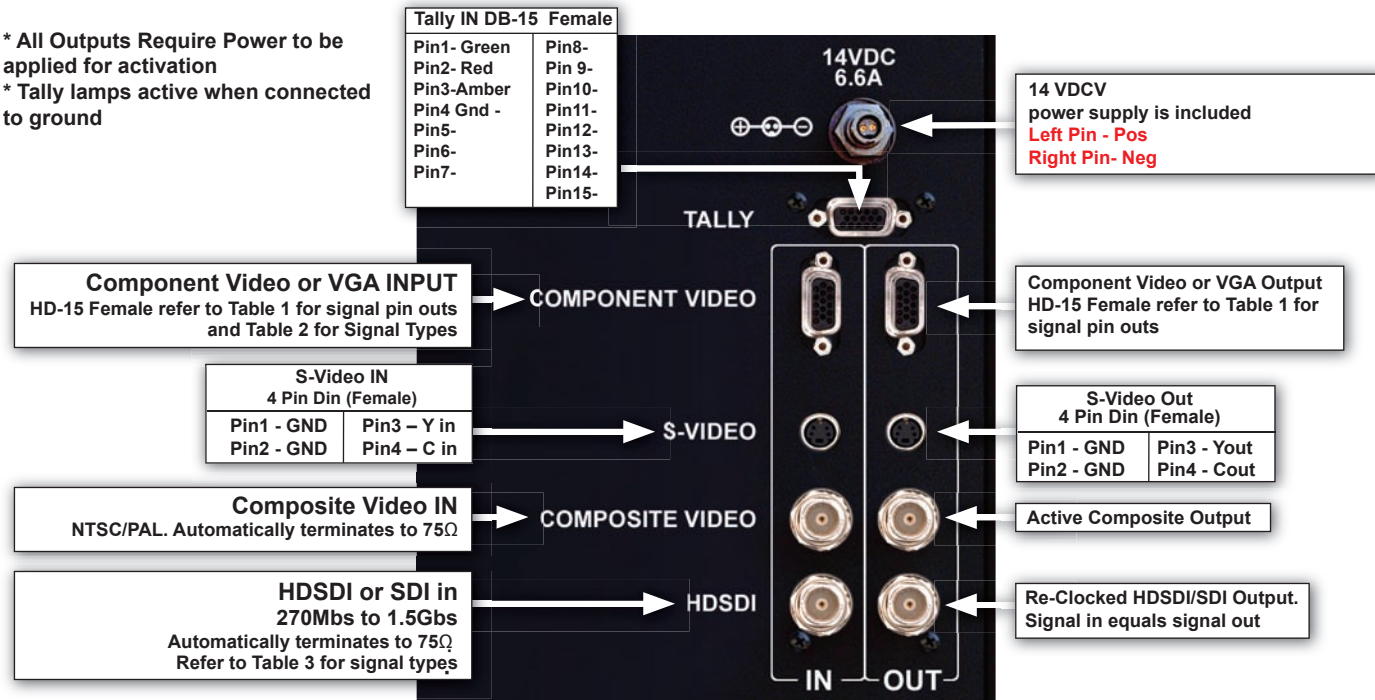
Signal	Frames per Second	Aspect	Active Lines	Scanning Method	Data Rate
525-60i	30/29.97	4:3/16:9	483	Interlaced	270Mb/s
625-50i	25	4:3/16:9	576	Interlaced	270Mb/s
1280x720P	60/59.94/30/29.97/24/23.97	16:9	720	Progressive	1.5Gb/s
1920x1035	30/29.97	4:3/16:9	1035	Interlaced	1.5Gb/s
1920x1080	30/29.97/25	4:3/16:9	1080	Interlaced	1.5Gb/s
1920x1080	30/29.97/25/24/23.97	4:3/16:9	1080	Progressive	1.5Gb/s

TABLE-4 / Analog Composite Input BNC Connector Signals

Signal	Frames per Second	Aspect	Active Lines	Scanning Method
525-60i	30/29.97	4:3/16:9	483	Interlaced
625-50i	25	4:3/16:9	576	Interlaced

## 7 Connectors

\* All Outputs Require Power to be applied for activation  
\* Tally lamps active when connected to ground



### Supplied Accessories:

- Users manual
- Universal 12vdc Class 2 power supply model V-PS12-5V1

### Remote Control Option

- Available at a future date

### Desk Stand Option

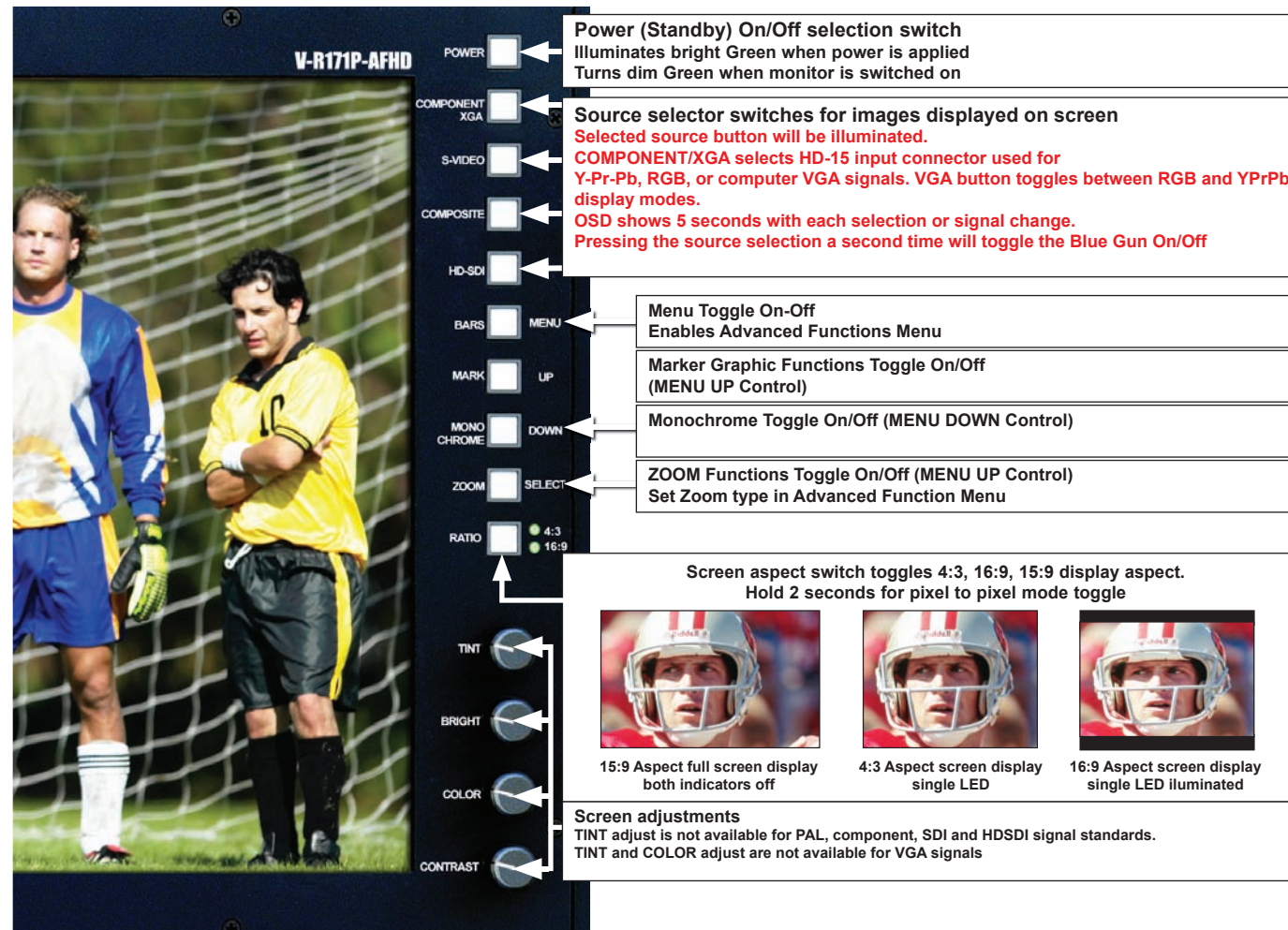
- Part number: VP-LCD171H-ST-01



## 3 Electrical Specifications

Screen Aspect	16:9/ 15:9/ 4:3/switchable
Display (Viewing Area)	17.1 Inch/434.38mm diagonal (372.48mm H x 223.488mm W)
Viewing Angles	180° In all directions
Resolution (RGB Dots)	1280H×RGBx768V (2.95 million pixels)
Dot Pitch	.291mm square pixel
Color Depth	16.7 million colors (8-bit)
Brightness (in cd/m <sup>2</sup> )	450 cd/m <sup>2</sup>
Contrast Ratio	500:1
Pixel Response	12ms rise/13ms fall
Backlight	Field Replaceable CCFL (50,000 hour half life)
LCD Screen Treatments	Anti Reflection, Anti Glare, Hardcoat
Estimated MTBF	5 years of 24/7/365 operation
Color temperature	D55, D65, D75, User
Color Gamut	SMPTE-C/EBU
Luma Linearity	Typical +/- 3% with 5 ire increments (0 to 10 ire)
Storage Temperature	-4°F to 120°F (-20°C to 50°C)
Compliance	CE, FCC-Class A, ANSI-63.4 (Certificates on file)
System	NTSC/PAL with auto recognition
Inputs	HD-15 (VGA, SVGA, XGA, RGB, YUV, Y-Pr-Pb 75Ωwith AGC) BNC for HDS/SDI (PAL/NTSC) 75Ωwith cable compensation to 1000' BNC for Composite Video (PAL/NTSC) 75Ωwith AGC 4 Pin Mini Din for S-Video (Y/C) with AGC HD-15 Female for Tally 12-14VDC-Conxall Female
Active Outputs	Composite Active Loop - BNC, HDS/SDI Shaped and Re-clocked - BNC Y/C (S-video) Active Loop-4 Pin Mini-din Female VGA, SVGA, XGA, , RGB, YUV, Y-Pr-Pb HD-15
Power Required	11.4 to 16.8 VDC
Power Consumption	prox. 35 watt nominal
Operating Temperature	32°F to 120°F (0°C to 50°C)
Compliance	CE, FCC-Class A, ANSI-63.4 (Certificates on file)
RoHS WEEE/Environmental	Do not dispose. Return to Manufacturer or Authorized Recycle Facility

## 8 Switch Settings, Adjustments and Indicators



## 4 Mechanical Specifications

V-R171P-AFHD Dimensions	19.12"W x 13.77"H x 2.5"D (48.56cm x 34.98cm x 63.50cm)
V-R171P-AFHD Approx. Weight	12 lbs (0.54kg)
V-PS12-5V-1 Power Supply Weight	1 lbs (0.10kg)

## 5 Operational Setup

1. Unpack the V-R171P-AFHD and accompanying power supply. Physically inspect for any damage that may have occurred during shipping. Should there be any damage, immediately contact Marshall Electronics at 800-800-6608. If you are not located within the continental united states call +1 310-333-0606.
2. After inspection, install in your desired location of a standard EIA 19-inch equipment rack. Adequate ventilation is required when installed to prevent possible damage to the V-R171P-AFHD internal components.
3. Connect required cables for signal input and output.  
**Please note that power must be applied to the V-R171P-AFHD for all of the looped outputs to be activated.**  
**All BNC connectors should be rated for 75Ω**
4. Plug the power supply into the A.C. source
5. Attach twist lock power connection from power supply to the back of the unit.
6. Turn on the V-R171P-AFHD by depressing the power switch located on the front of the unit.