

# Marshall Electronics

1910 East Maple Ave.  
El Segundo, CA 90245  
Tel.: 800-800-6608 • 310-333-0606  
Fax: 310-333-0688  
[www.LCDRacks.com](http://www.LCDRacks.com)  
Email: [sales@lcdracks.com](mailto:sales@lcdracks.com)

## V-R104DP-HD Users Guide



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## 1 Product Overview

The V-R104DP-HD features our Completely Digital TFT-Megapixel™ high definition TFT/LCD system with 1.44 million pixels. Analog signals are digitized using an advanced 10 bit process with 4x over sampling and adaptive 5 line comb filter plus exacting color space conversion. Video is scaled to fit on screen in the highest resolution using a state of the art LSI that incorporates 6x6 pixel adaptive motion interpolation with precision Gamma correction. Additional features include Pixel-to-Pixel™ native resolution scaling, setup memory, Underscan, H/V Delay, adjustable color temperature, and Blue Gun.


## 2 Features

- TFT-MegaPixel™ totally digital
- Multiple format acceptance for virtually any analog video signal
- Display PC Signals to XGA 1024x768
- ColorMatch Conversion™ with SMPTE/EBU color space emulation of CRT
- Color temperature preset for D65
- HyperProcess™ motion interpolation of interlace images
- On screen display of input status, formats, and menu functions
- Pixel to Pixel™ native resolution display
- Ready to mount – all brackets are factory installed
- Lightweight – 75% lighter than CRT models
- Settings memory restores active state with power off/on cycle
- Underscan plus H & V delay
- Blue only (Blue Gun) for adjustment to SMPTE color bars
- Includes V-PS12-5V-1 Universal power supply (U.L. class 2)
- Three LEDs (Red, Green, Amber) produce 7 different tally indications on each screen
- Dry erase label for each screen

## 3 Video - Screen Formats and Frame Rates All signal types and frame rates are automatically detected

- 525 –60i / 625 - 50i (Interlaced NTSC/PAL)
- 480P (Progressive)
- 576P (Progressive)
- 720P-50P, 59.94P, 60P, 25P, 29.97P, 30P, 50P, 59.94P, 60P (Progressive)
- 1035i - 59.94i, 60i (Interlaced)
- 1080i x 1920 – 50i, 59.94i, 60i, 23.973P, 24P, 25P, 29.97P, 30P, 24psf, 23.97psf

## 4 Electrical Specifications

Screen Aspect	4:3/16:9 switchable
Display (Viewing Area)	10.4 Inch diagonal (211.2mm w x 158.4mm h)
Viewing Angles	130° H x 120° V
Resolution (RGB Dots)	800H×RGBx600V (1.44 million pixels)
Color Depth	262,000 Colors (6-Bit)
Dot Pitch	.213mm square pixel
Contrast Ratio	350:1
Pixel Response	10ms rise/25ms fall
Brightness (in cd/m <sup>2</sup> )	500 cd/m <sup>2</sup>
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
System	NTSC/PAL with auto recognition
Inputs	HDSDI/SDI (SMPTE259M, 292M) (ITR-U601) per screen (BNC) YPrPb Component (3 BNC) Composite Video PAL/NTSC auto detect (BNC) S-Video (Y/C) (4 Pin Mini Din female) XGA 15Pin HD-15 Female DVI 27 (Pin DVI-I Female) Tally (HD-15 Female)
Active Outputs	HDSDI/SDI (SMPTE259M, 292M) (ITR-U601) per screen (BNC) YPrPb Component (3 BNC) Composite Video PAL/NTSC auto detect
Color temperature	D65 and User Adjustment
Color Gamut	SMPTE-C/EBU 80% CIE
Luma Linearity	Typical +/- 3% with 5 IRE increments (0 to 10 IRE)
Power Required	10.8 to 13.2 VDC
Power Consumption	Approx. 40 watt nominal
Operating temperature	32° F to 120° F (0° C to 50° C)
Storage temperature	-4 F to 120° F (-20° C to 50° C)
Compliance	Ⓢ, FCC-Class A, ANSI-63.4 (Certificates on file)
RoHS WEE / Environmental	 Do not dispose. Return to Manufacturer or Authorized Recycle Facility

## 5 Mechanical Specifications

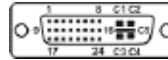
<b>Dimensions</b>	19.12" w x 8.67" h x 1.5" d (485.7mm x 220.22mm x 38.1mm)
<b>V-R104DP-HD Weight</b>	5.5 lbs (2.4 kg)
<b>V-PS12-5V-XLR Power Supply Weight</b>	1 lbs (0.45kg)

## 6 Operational Setup

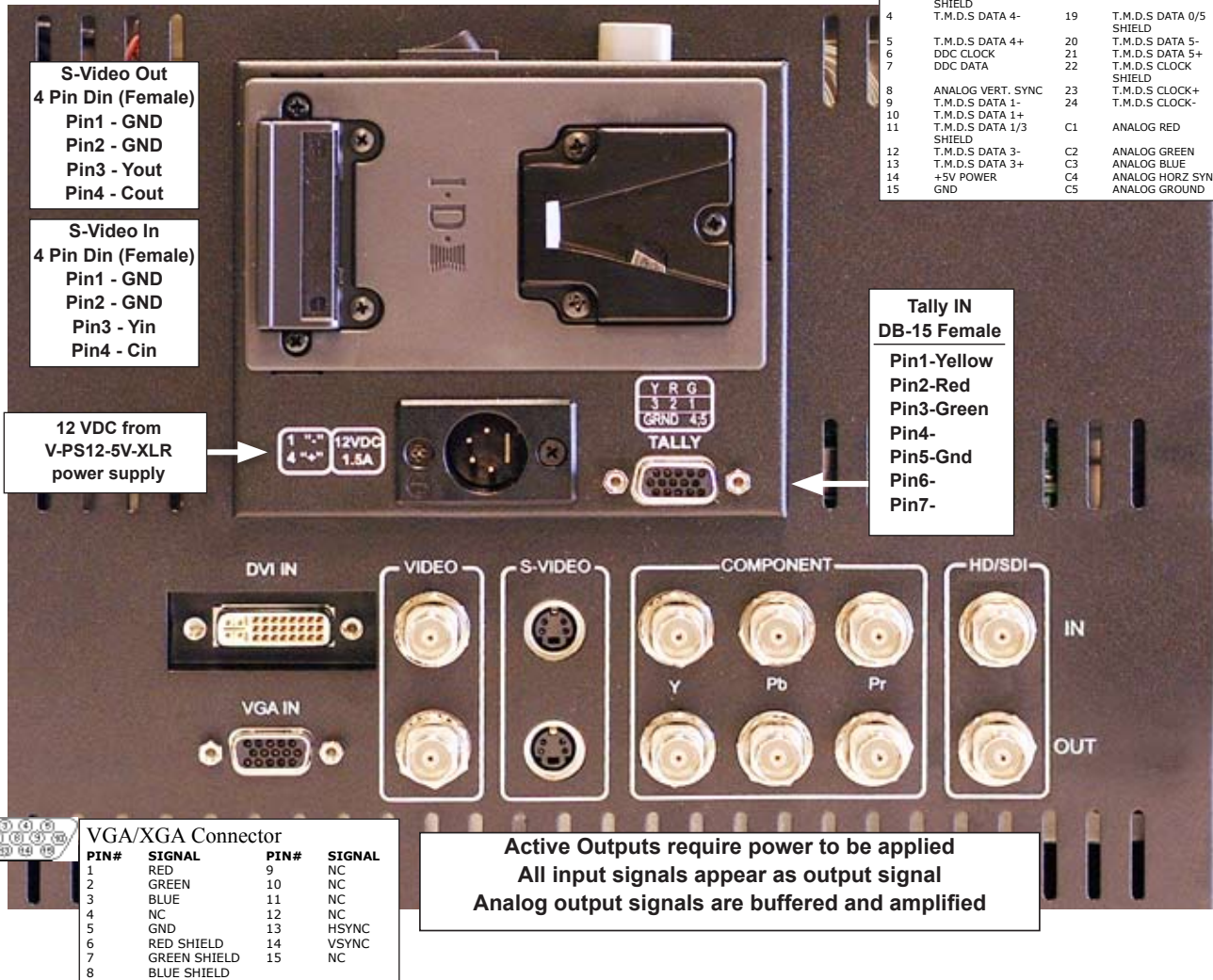
1. Unpack the V-R104DP-HD and accompanying V-PS12-5V-XLR power supply. Physically inspect for any damage that may have occurred during shipping. Should there be any damage, immediately contact Marshall Electronics at 800-800-6608. If you are not located within the continental United States call +1 310-333-0606.
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-R104DP-HD internal components.
3. Connect required cables for signal input and output. Please note that power must be applied to the V-R104DP-HD for all outputs to be activated. All BNC connectors should be rated for 75Ω.
4. Plug the V-PS12-5V-XLR power supply into the A.C. source
5. Attach twist lock power connection from V-PS12-5V-XLR power supply to the back of the unit.
6. Turn on each of the V-R104DP-HD screens by depressing the power switch located on the front of the unit for each screen.

## 7 Connectors

- \* HDSDI/SDI Inputs comply to SMPTE - 259M, 292M, SDI - 270Mbs, HDSDI - 1.485Gb/s
- \* Component Inputs comply to SMPTE274M, 294M,295M,296M
- \* Composite Video Inputs comply to SMPTE-170M
- \* Tally lamps active when connected to ground



Pin#	Signal	Pin#	Signal
1	T.M.D.S DATA 2-	16	HOT PLUG DETECT
2	T.M.D.S DATA 2+	17	T.M.D.S DATA 0-
3	T.M.D.S DATA 2/4	18	T.M.D.S DATA 0+
4	SHIELD	19	T.M.D.S DATA 0/5
5	T.M.D.S DATA 4-	20	SHIELD
6	T.M.D.S DATA 4+	21	T.M.D.S DATA 5-
7	DDC CLOCK	22	T.M.D.S DATA 5+
8	ANALOG VERT. SYNC	23	T.M.D.S CLOCK SHIELD
9	T.M.D.S DATA 1-	24	T.M.D.S CLOCK+
10	T.M.D.S DATA 1+	C1	T.M.D.S CLOCK-
11	T.M.D.S DATA 1/3		ANALOG RED
	SHIELD		
12	T.M.D.S DATA 3-	C2	ANALOG GREEN
13	T.M.D.S DATA 3+	C3	ANALOG BLUE
14	+5V POWER	C4	ANALOG HORIZ SYNC
15	GND	C5	ANALOG GROUND



**Table 1 / Computer Signals Displayed via DVI and VGA connector**

Input Signal Type and aspect	DVI-D		VGA	
	4x3	16x9	4x3	16x9
640 x 480 60Hz	Y	Y	Y	Y
640 x 480 75Hz	Y	Y	Y	Y
640 x 480 85Hz	Y	Y	Y	Y
800 x 600 60Hz	Y	Y	Y	Y
800 x 600 75Hz	Y	Y	Y	Y
800 x 600 85Hz	Y	Y	Y	Y
1024 x 768 60Hz	Y	Y	Y	Y
1024 x 768 75Hz	Y	Y	Y	Y
1024 x 768 85Hz	Y	Y	Y	Y

**Table 2 / Video Signals Displayed via DVI and YPrPb connections**  
(x=not available) (HDMI requires adapter to DVI)

Input Signal Type and aspect	Y Pr Pb		DVI	
	4x3	16x9	4x3	16x9
720 x 486 60i	Y	Y	x	x
720 x 576 50i	Y	Y	x	x
1280 x 720 60P	Y	Y	Y	Y
1280 x 720 50P	Y	Y	Y	Y
1280 x 720 30P	Y	Y	x	x
1280 x720 29.97P	Y	Y	x	x
1280 x720 25P	Y	Y	x	x
1280 x 720 24P	Y	Y	x	x
1280 x 720 23.98P	Y	Y	x	x
1920 x 1080 60i	Y	Y	Y	Y
1920x1080 59.94i	Y	Y	Y	Y
1920 x 1080 50i	Y	Y	Y	Y
1920 x 1080 30P	Y	Y	Y	Y
1920x1080 29.97P	Y	Y	Y	Y
1920 x 1080 25P	Y	Y	Y	Y
1920 x 1080 24P	Y	Y	Y	Y
1920 x 1080 24Psf	Y	Y	Y	Y

**Table 3 / Computer Signals Displayed via SDI/HDSDI**

Input Signal Type and aspect	SDI	
	4:3	16:9
NTSC (720x486i 60Hz)	Y	Y
PAL (720 x 576i 50Hz)	Y	Y
1280x720p 60Hz	Y	Y
1280x720p 59.94Hz	Y	Y
1280x720p 50Hz	Y	Y
1280x720p 30Hz	Y	Y
1280x720p 29.97Hz	Y	Y
1280x720p 25Hz	Y	Y
1920x1080p 30Hz	Y	Y
1920x1080p 29.97Hz	Y	Y
1920x1080p 25Hz	x	x
1920x1080p 24Hz	x	x
1920x1080p 23.98Hz	Y	Y
1920x1080sf 24Hz	Y	Y
1920x1080sf 23.98Hz	Y	Y
1920x1080i 60Hz	Y	Y
1920x1080i 59.94Hz	Y	Y
1920x1080i 50Hz	Y	Y
1920x1035i 60Hz	Y	Y
1920x1035i 59.94Hz	Y	Y

## 8 Faceplate Cleaning

### Faceplate Cleaning

When cleaning the faceplate it is very important to use non-abrasive and ammonia free cleaning agents and a clean micro fiber cloth. Do not use paper towels. Paper towel fibers are coarse and may scratch the surface of the Polycarbonate faceplate. Paper towels may also leave streaks on the surface. Antistatic and fingerprint resistant cleaning agents are recommended.

Wash protective cover with a solution of mild soap or detergent and lukewarm water. Use a clean soft cloth, applying only light pressure. Rinse with clean water and dry by blotting with a damp cloth or chamois. Grease, oil or tar may be removed with a good grade of hexane, aliphatic naphtha, or kerosene. These solvents may be obtained at a paint or hardware store and should be used in accordance with manufacturer's recommendations.

**DO NOT USE:** window cleaning sprays, kitchen scouring compounds or solvents such as acetone, gasoline, benzene, alcohol, carbon tetrachloride, or lacquer thinner. These can scratch the sheet's surface and/or weaken the sheet causing small surface cracks called "crazing."

### Faceplate Dusting

Dust with a soft, damp cloth or chamois. Dry or gritty cloths may cause surface scratches and create a static electric charge on the surface. Neutralizing static electricity effects by using recommended cleaning and polishing practice.

### Faceplate Polishing

Protect and maintain surface gloss by occasional polishing with a good plastic cleaner and polish. Apply a thin, even coat with a soft clean cloth and polish lightly with cotton flannel. Then wipe with a damp cloth to help eliminate electrostatic charges that can attract dust particles

### Marking on the Faceplate

Use SHARPEE or equivalent marker. Clean as per instructions with an ammonia free cleaning agent.

### Recommended Anti-Static Cleaners and Polishes

210 Plastic Cleaner & Polish and 210 Plus Cleaner <b>Sumner Laboratories</b> 186 Lincoln Street Boston, MA 02111 617-542-8656 / Fax: 617-482-9001	<b>Exair Corporation</b> 1250 Century Circle North Cincinnati, OH 45246-3309 513-671-3322 Fax : 513-671-3363 <b>www.exair.com</b>	Plexus Plastic Cleaner <b>Plexus</b> 638 Lindero Canyon Rd. #371 Agoura, CA 91301 800-405-6495 Fax: 818-879-0697	Scotch-Brite High Performance Cloth <b>3M Stationery &amp; Office Supplies</b> <b>Div. 3M Center</b> St. Paul, MN 55144-1000 877-362-5684 Fax: 651-733-0382 <b>www.mmm.com</b>
Crystalclean <b>Discovery Plastics</b> 3700 Western Way, NE Millersburg, OR 97231 541-926-2900 / Fax: 541-967-8441 www.discoveryplastics.com	<b>The Simco Industrial Static Control</b> An Illinois Tool Works Co. 2257 North Penn Road Hatfield, PA 19440-1998 800-203-3419 / 215-822-2171 Fax: 215-822-3795 <b>www.simco.biz</b>	NOVUS #1 Plastic Clean and Shine <b>NOVUS, Inc.</b> 12800 Highway 13 South, Suite 500 Savage, MN 55378 800-548-6872 ext.451 Fax: 952-946-0435	20/20 Plastic-Cleaner <b>Craftics, Inc.</b> PO Box 91930 Albuquerque, NM 87199 (505) 338-0005

## 9 Optional Accessories

Sun Hood	V-H10M		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-0909-DA		Converts HDSDI to analog Composite
Set of 3 Tripod Mount Brackets with screws	V-LCD70TMB-02		Fits all single screen 7.0", 8.4", 10.4" and V-R65P-HD monitors. Mounting plate can be installed to any side of monitor enclosure. Compatible with most 1/4-20 threaded mounting devices.
Cleaning Wipes	V-HWP-K		Package of 10 non-toxic, antistatic, alcohol and ammonia free cleaning wipes.

## 10 Switch Settings, Adjustments and Indicators



Screen aspect ratio switch 4:3 or 16:9 selector and indicators

4:3 Aspect      16:9 Aspect

Image Adjustment Controls  
Note: Tint only functions when NTSC Video or S-Video are selected

# 11 Menu Functions

## 1. Power On/Off Button

Illuminates Red when system power is present. Illuminates Green when monitor is ON.

## 2. Source Selection Buttons

**Video** - Composite NTSC or PAL. Composite video must comply to SMPTE-RS170M.

Images without color burst (Subcarrier) component may not display.

**S-Video** - Y/C (Luminance + Chrominance) NTSC or PAL.

**YPrPb** - Analog Component color difference signals for Standard Definition (YCrCb) or High Definition (YPrPb).

**VGA** - Analog PC.

**DVI** - Digital Computer or Video Signals. Includes HDCP for use with HDMI originated signals.

**HDSOI** - Digital Input for Standard Definition (SDI-270Mbps) or High Definition (HDSOI - 1.485Gb/s).

## 3. Pixel to Pixel Function

As the native LCD displays of the V-R104DP-HD are 800 pixels wide by 600 dots (RGB pixels) high, it is 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.

**For 525-NTSC/480P based images**, pixel to pixel will appear as a 480x640 (4:3 aspect) or 480x720 (16:9 aspect).

**For 625-PAL/576P based images**, pixel to pixel will appear as a 576x640(4:3 aspect) or 576x720 (16:9 aspect).

**For 1080 line HD based images**, pixel to pixel will appear as cropped 800x600 (4:3 aspect) starting from the center of the image. 240 lines top, 240 lines bottom, 560 pixels left and 560 pixels right will be cropped.

**For 720 line HD based images**, pixel to pixel will appear as cropped 800x600 (4:3 aspect) with 60 lines from the top and 60 lines from the bottom cropped. Horizontally, 240 pixels will be cropped from each edge.

## 3. Menu Enable and navigation

Access menu functions by selecting the **MENU** button. Use **UP / DOWN** to navigate and **SELECT** to enable or disable the function

Note: Source selection is disabled when in menu mode.

### Color Temperature

**D-65 (6500K)** - Standard setting recommended by SMPTE and EBU.

Simulates normal daylight conditions.

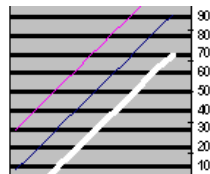
**USER** - When activated manual adjustment is performed by selecting

**Adj. Color Gain** or **Adj. Color Bias**

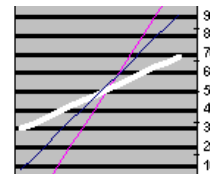


When in adjust mode use **UP/DOWN** to change values. Use **SELECT** to cycle RED, GREEN, and BLUE mode. Exit to the main menu by pressing **MENU**.

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



### Level Set-up

**SELECT** between 7.5 IRE for NTSC signals and 0 IRE for NTSC Japan and PAL signals.

7.5 mode will enable a digital black offset of the onscreen images for improved Blacks.

### Color Bar

Use to **SELECT** internal test signal of full field color bars that is available for confirmation of LCD operation. This function will disable input selection until cycled off.

### H/V Delay

Use to **SELECT** display of horizontal and vertical blanking areas.

Not available for all signal types.

### Under Scan

Use **SELECT** to reduce the display area with expansion beyond active video. Note that the V-R104DP-HD is factory adjusted to display 100% of active video in standard display mode.

This function is normally used with analog Standard definition signals.





### OSD

Use SELECT to enable the On Screen Display for input and function status

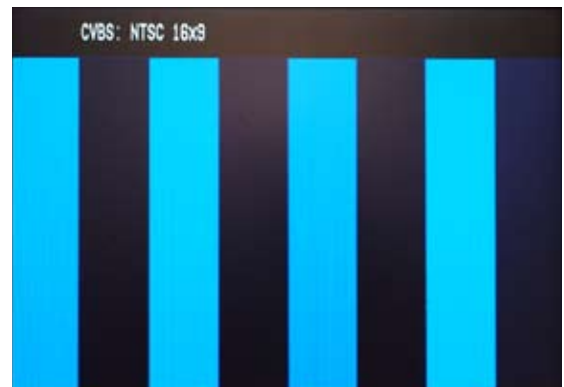
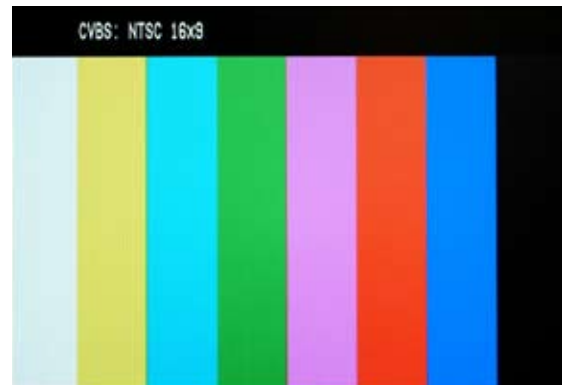
### Blue Only

**SELECT** to adjust SMPTE or split field color bars.

1. Allow monitor to warm up for 5-10 minutes minimum.
2. Display SMPTE color bars on monitor. Turn on off Color with control.
3. Find the PLUGE (superblack, black, and gray bars) at the lower right of the pattern.

Adjust BRIGHTNESS until there is no difference visible between the super-black and black bars, but is still visible.

4. Adjust CONTRAST control to achieve a balanced gray scale across top bars.
5. Turn up CHROMA (color level) control until the two outermost bars (white and blue appear to match in brightness).
6. 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.



## **12** Warranty

Marshall Electronics warrants to the first consumer, that this V-R104DP-HD 10.4-inch LCD rack mounted monitor set 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.