Warranty

Marshall Electronics warranties to the first consumer that this OR-901-XDI 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.

Marshall Electronics, Inc.
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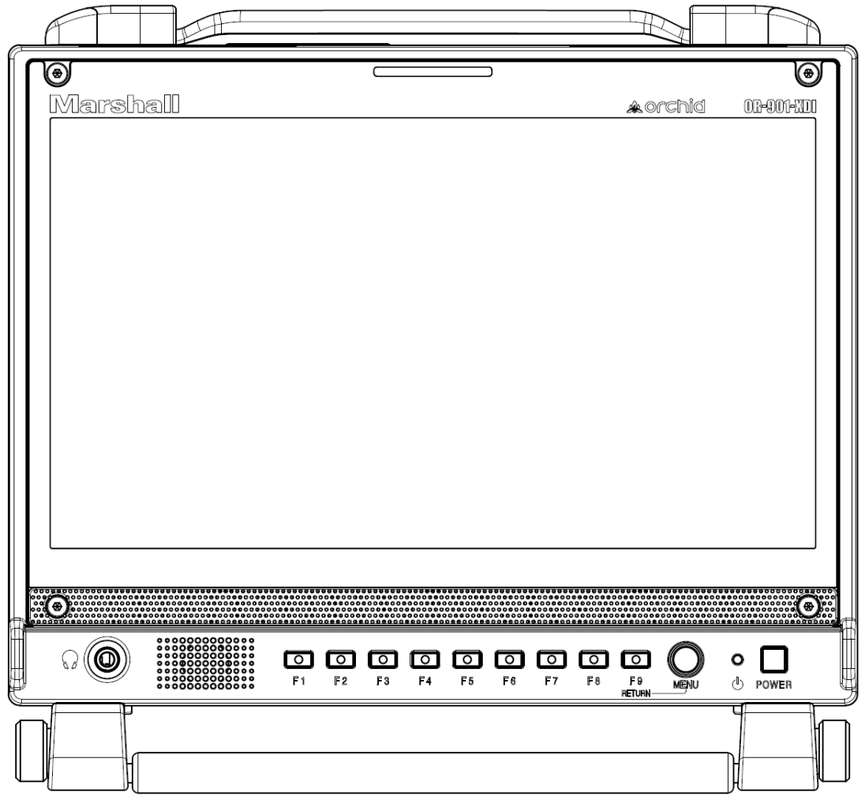
2011 07- 29 v-1.0.3

Marshall Electronics

orchid OR-901-XDI

Fully Featured 9.0” Camera Top / Rack Mountable / Portable LCD Field Monitor
With HDSDI x HDMI Cross Conversion



Operating Instructions

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Maintenance / Color Calibration / Upgrade Procedure

■ 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

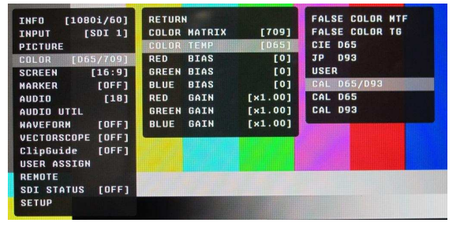
Dust the unit with a soft, damp cloth or chamois. Dry or abrasive cloths may cause electrostatic charge on the surface, attracting dust particles. Neutralize static electricity effects by using the recommended cleaning and polishing practice.

■ Color Calibration

An optional OR-SM Service Module is required for this procedure.

• Allow both the unit you want to calibrate and the Minolta® CA-210 to warm up for a minimum of 20 minutes.

- Attach the CA-210 color probe to the update dongle.
- With the unit still turned on, insert the update dongle into the service port at the rear of the screen you wish to calibrate.
- Use the menu navigation Rotary encoder and go to:
  Color Menu
  Color Temp
- Cal D65/D93 to calibrate both
- Cal D65 to calibrate only D65
- Cal D93 to calibrate only D93



Press the Rotary encoder to select and again to confirm

- Follow the on-screen instructions

Notes:
1. If there is no color probe attached or you make a mistake and try to calibrate the incorrect screen, you will get an error message and the screen will default to previous settings.
2. If the calibration process is interrupted while in progress, the current screen settings will be corrupted and the calibration process will have to be repeated.

Firmware Update

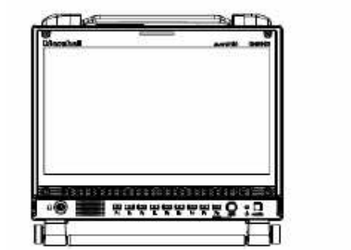
An optional OR-SM Service Module is required for this procedure.

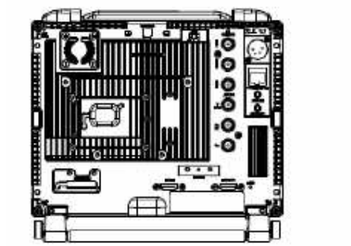
1. Download the Orchid update software package from the Marshall web site
2. Unzip the included files from the zip folder to a known location on your computer
3. Double-click the Un-Zipped Orchid Update program and firmware package to install on your computer
4. Turn on the Orchid unit to be upgraded
5. Connect the OR-SM module to your computer
6. Insert the OR-SM module into the Service port
7. Run the Orchid Update program
8. Click Update
   - The Updater will check for available software
   - Compare it to the current version
   - Perform the update.

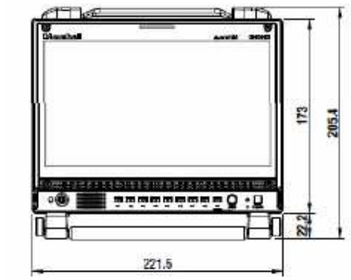
Notes:

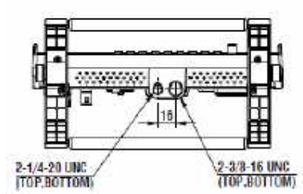
- The update process will take approximately 8 minutes.
- If the Update program does not automatically detect your Orchid model you will be asked to choose the appropriate model from a drop down list then click Update again.
- Clicking on Details allows you to monitor the update process

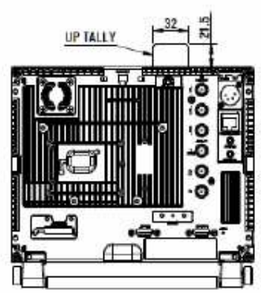
Specifications

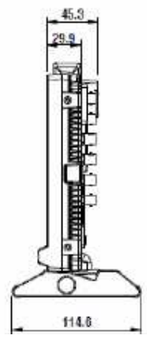


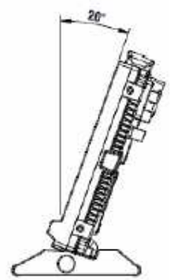








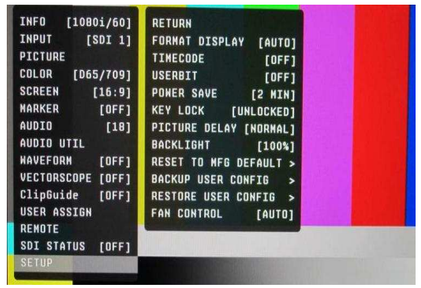




OR-901-XDI		
PANEL	SCREEN SIZE	9"(Diagonal Wide)
	Display Area(h x v)	7.8" x 4.4"(198.72mmx111.78mm)
	Aspect ratio	16:9
	Pixels	960(H)x540(V)
	Color Depth	16.7M, 24bit true color
	Viewing Angle(h x v)	-85° ~ 85°(H), -85° ~ 85°(V)
	Brightness	320 cd/m^2
	Contrast Ratio	1000:1
VIDEO	ANALOG(COMPONENT/RGB/S-VIDEO/COMPOSITE) Input	3xBNC
	SDI(3G/HD/SD) Input	2xBNC
	HDMI Input	1xHDMI(TYPE-A)
	SDI(3G/HD/SD) Output	1xBNC(Loop through & Cross converted)
	HDMI Output	1xHDMI(TYPE-A), Loop through & Cross converted, HDCP enabled
AUDIO	Input	1(Rear), 3.5mm Stereo Jacks
	Output	1(Rear), 3.5mm Stereo Jacks
		1(Front), 3.5mm Stereo Jacks
	Speaker	Built-in(1W, Mono Speaker)
GENERAL	Power Supply	12VDC 4-Pin XLR, Battery
	Parallel Remote Input	7xGPI, RJ-45
	SERVICE Terminal	Service Module for update
	Tally	Built-in(RGB LED), Up-Tally(RED LED)
ELECTRICAL	Voltage	5.5~18VDC
	Power Consumption	Approx. 16W(12V,1.4A)
TEMPERATURE	Operating temperature	0°C~40°C
	Storage Temperature	-20°C~60°C
MECHANICAL	Dimension(w x h x d)	8.7"x7.2"x1.8"(221.5mmx183.2mmx45.3mm)
	Weight(Monitor Only)	1.6Kg

Contents

SETUP SUBMENU



■ Format Display
Auto This mode will display the video format information for about 8 seconds whenever video format is changed.
Off - This mode will not display any video format information.
On - This mode will always display current video format information.

■ Timecode
Selects among to following options: OFF / LTC / VITC1 / VITC2. In the most cases, the value of LTC and VITC1 will be identical to each other.

■ Power Save
• When enabled, the monitor will go to sleep when the selected amount of time has passed after a loss of picture occurs.
• When a valid video format is detected, the monitor will wake up from the sleep state.
• Pressing any front panel keys will wake up the monitor.
• In the sleep state, all lights (including the backlight and front key indicators) are turned off.
• Any change in parallel remote status will wake up the monitor.
• Tally status is not affected by sleep mode.

■ Key Lock
In the locked mode all front panel keys are disabled except for accessing the menu.

■ Picture Delay
Allows the user to select the processing delay time:
- Normal — Typically 3 frame delay with best picture quality
- Fast — Typically 1.5 frame delay at good picture quality
- Fastest — Typically 0.5 frame delay with some picture artifacts

■ Backlight
Allows user to dim the backlight from 100% to 25% in order to compensate for ambient lighting conditions or to extend the life of the BLU.

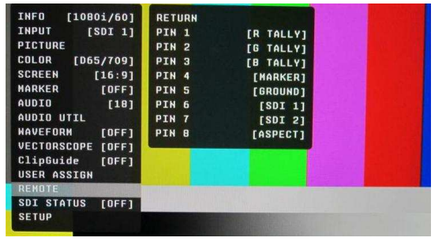
■ Reset to MFG Default
• This will Restore all configuration values and functions to the default factory state.
• This will not change Model Name, Serial Number, or White Balance Data.
• Requires Confirm action by selecting Confirm again.
(Select Reset -> Press Enter -> Select Confirm -> Press Enter)
• Resetting default will not effect backed up data.

■ Backup User Configuration
• This command backs up all user information to the secondary EEPROM (User settings)
• Requires Confirm action by selecting Confirm again.
(Select Backup -> Press Enter -> Select Confirm -> Press Enter)

■ Restore User Configuration
This will Restore all information previously stored to the secondary EEPROM (User settings) and overwrites all Current settings. Requires Confirm action by selecting Confirm twice. (Select Restore -> Press Enter -> Select Confirm -> Press Enter). After restoration, the system exits the OSD menu.

■ Fan Control
Allows the user to select the status of the cooling fan from three options:
- OFF — Turns fan off for quiet operation while shooting a scene
- AUTO — The fan will operate only when the internal temperature requires cooling
- MAX — The fan will operate continuously at Max speed

REMOTE SUBMENU



■ Pin 1 through Pin 8:
The RJ-45 Remote connector on the rear panel has 8 pins. Pin 5 is Ground, while the remaining 7 pins are pulled high to 3.3VDC and may be used for Tally or other Remote Commands. A list of available Commands and Tally configurations can be found in the REMOTE section of the Menu Overview section of this manual. The command or Tally is activated by connecting the corresponding Pin (1-4 and 6-8) to Pin 5 (Ground).

Event Triggers:
Two types of events are allowed.

- The falling event is when you pull down to ground, and the rising event is when you remove the ground and the pin returns to the normal high state.
- Falling events occur only once and on the event of power up sequence.
  - This means a falling event will occur only once regardless of whether its pin is repeatedly grounded such as when selecting an input source.
- The rising event can only occur once a pin has been pulled down to ground to activate the command such as turning on a tally and then releasing ground (open circuit) to turn off.
- Priority
  - The Lower pin numbers have higher priorities over higher pin numbers during the power up sequence.

Tally System
The Tally System can be used in a non-separated mode and separated mode.

- Non-Separated Mode
  - Supports R/G/B tallies.
  - Can mix any channels. FOR EXAMPLE: Mix Red and Green for Amber.
  - Cannot mix R/G/B for White (It will be pink due to white balance).
  - Cannot be assigned with separated tallies.

- Left/Right Separated Mode
  - Supports R/G/B tallies on each Left and Right.
  - Can mix any channels for each Left and Right.
  - Cannot mix R/G/B for White (It will be pink due to white balance).
  - Cannot be assigned with non-separated tallies.

SDI STATUS SUBMENU

The SDI submenu shows the SDI Error Count, allows you to Reset the counter and sets up how you would like to display the SDI Error counter. The Choices are OFF – ON – AUTO.

The SDI Error Counter will count the following types of errors.
• Line-based CRC error
• Line number error
• TRS error
• EDH CRC error
• ANC data checksum error

An error count of more than 1 could be considered as abnormal. There is no particular scale to the number of errors counted. The max number of errors displayed is 9999. For example assume that there is a problem with a source and it is outputting a SDI signal with invalid CRC for each line. The Orchid Error counter will result in a count of 9999 within 9 frames (150ms). However, if the source is not bad and the Error counter occasionally counts up these are mostly caused by poor connections or bad SDI cables.

Optional Accessories for OR-901-XDI

OR-8HA
Side Handle

OR-9HO
Hood

OR-9RMK
Rack Mount Kit
(mounts two units side-by-side)

Optional Field-Interchangeable Battery Adapters

MARSHALL MOUNTING PLATE ADAPTER	BATTERY TYPE	RECOMMENDED BATTERY / VOLTAGE
Field-Interchangeable Battery Adapter Options		
 CM Part # 0071-1307-A	 Canon	Canon BP-970G 7.2V
 JM Part # 0071-1308-A	 JVC	JVC BN-V438U 7.2V
 PM Part # 0071-1306-A	 Panasonic	Panasonic CGA-D54 7.2V
 PV Part # 0071-1309-A	 Panasonic	Panasonic VW-VBG6 7.2V
 SB Part # 0071-1305-A	 Sony B Series	Sony BP-460 14.4V
 SM Part # 0071-1304-A	 Sony M Series	Sony NP-QM91 7.2V
 SL Part # 0071-1303-A	 Sony L Series	Sony NP-F970 7.2V
 AB (Uses Anton Bauer Gold Mount plate) Part # V-ABA-02	 Anton Bauer	Anton Bauer Hytron 50 14.4V
 VM (Uses IDX plate with riser) Part # IDX-M-EB-RAW	 V-Mount	IDX E75 14.4V

Product Overview

The Orchid OR-901-XDI is a single 9.0” fully featured camera-top and video assist monitor system. The OR-901-XDI offers built-in fully automatic HDSDI to HDMI & HDMI to HDSDI Cross Conversion, Multiple modes of Anaglyph 3D production tools, Waveform Monitor, Vectorscope, Audio Bars, Built in Speaker with audio outputs, and several diagnostic tools. This monitor is ideal for use as a camera top or camera assist monitor. The OR-901-XDI is equipped with two 3G/HD/SD-SDI inputs as well as analog Composite (CVBS) Component (Y, Pb, Pr) S-Video (Y, C) and HDMI inputs with switched or cross converted HDSDI and HDMI outputs allowing a single HDMI camera output to feed both the HDMI input on the OR-901-XDI while simultaneously feeding an HDSDI signal to additional video assist equipment or conversely an HDSDI input to be converted to feed additional HDMI equipment. Diagnostic tools include our exclusive ClipGuide feature, 16 Tri-Color Audio Bar Graph meters with peak hold and numeric display of headroom and peak levels, and real-time analysis of color space conversion gamut errors. Other standard features include factory calibrated screen, easy-to-navigate onscreen menus with RotoMenu control, 9 assignable function keys, adjustable color temperature, aspect ratio settings, a variety of screen markers, blue-only mode, monochrome mode, H/V delay, and 7 assignable GPI inputs.

USER ASSIGN SUBMENU

■ F-1 thru F-9:
There are nine Function Keys and One Rotary Encoder on the front panel of the OR-901-XDI. Each of these F-keys may be assigned to any one of 31 different functions as required by the job or individual user.

These functions are listed in the USER ASSIGN section of the Menu Overview section of this manual.

There are three types of User Assigned Functions:

One-way functions:
- Pressing the assigned key will activate the feature
  - When it is enabled, the indicator of the key will illuminate
  - Pressing again will have no effect

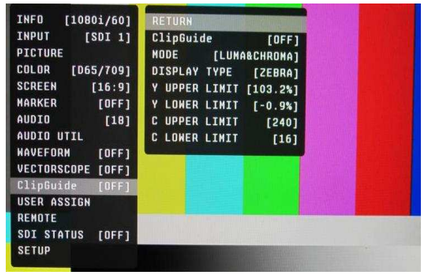
  FOR EXAMPLE: Selecting an Input, Selecting Audio Preset, Selecting White Balance

Two-way functions:
- Pressing the assigned key will active the feature
  - When it is enabled, the indicator of the key will illuminate.
  - Pressing again will deactivate the feature and the indicator will go out.

  FOR EXAMPLE: Scan, WFM, ALM, Layout, HV Delay

Sequential functions:
- Pressing the assigned key will rotate features in sequence.
  FOR EXAMPLE: Timecode, Color Channel
  - TimeCode will change its state for OFF->LTC->VITC1->VITC2->OFF
  - Color Channel will change its state for RGB->R Only->G Only … -> RGB

CLIPGUIDE SUBMENU



■ CLIPGUIDE
Use this menu to turn the ClipGuide function On or Off.

■ Mode
Allows the choice of which ClipGuide function you want to display. There are 6 modes to choose from:
• Luma (Y) displayed over Color Video
• Luma (Y) displayed over Mono Video
• Chroma (C) displayed over Color Video
• Chroma (C) displayed over Mono Video
• Luma (Y) and Chroma (C) displayed over Color Video
• Luma (Y) and Chroma (C) displayed over Mono Video

■ Display Type:
ClipGuide will display over and under values in two ways when monitoring the video signal. In the Zebra mode, over and under conditions are indicated in a Zebra (diagonal stripe) pattern. In the Fill mode, over and under conditions are indicated by a solid fill. In either Zebra or Fill mode, Red is the indication for Luma and Yellow is the indication for Chroma.

■ Y and C LIMITS:
These values are shared with WFM settings

- Y Limits:

Set luminance upper and lower limits to be monitored.

- Limits are displayed in IRE unit
- Varies between -7.3 IRE and 109.1 IRE
- This value will be shown in WFM window as red line
- Any data exceeding these values will be displayed as red on the picture
- These values are shared with WFM settings
- Internally, Y values ranges from 0 to 255
- -7.3 IRE equals to 0 in digital
- 0 IRE equals to 16 in digital
- 100 IRE equals to 235 in digital
- 109.1 IRE equals to 255 in digital
- C Limits:

Sets the chrominance levels to be monitored.

- Displayed in 8-bit digital video representation
- Any data exceeding these values will be displayed as Yellow in the picture
- The factory preset for C limits are 16 and 240 according to ITU-R BT.709
- Typically these values should not be exceeded during normal video production

Features

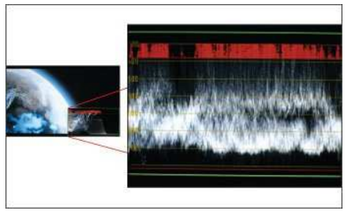
High Resolution 9.0” Panel

The OR-901-XDI features an all-digital 8-bit, 960 x 540 resolution panel chosen to allow monitoring of HD 1920 x 1080 video formats without scaling artifacts. The LCD panel features a nominal brightness of 320 cd/m2 and a contrast ratio of 1000:1 making this display ideal in a variety of environments and lighting conditions.

Input Cross Conversion

The OR-901-XDI has a fully automatic built in signal converter that performs the following conversions:

- HDSDI to HDMI (with embedded audio if present)
- HDMI to HDSDI (with embedded audio if present)
- Component HD to SDI



Waveform Monitor Function

The built-in waveform monitor (which includes adjustable White and Black clip level indicators) can be displayed in various aspect ratios, positions, and transparency options. The Waveform Monitor can display luminance only or YUV in Parade format, It can also warn the user for out-of-range conditions such as overexposure or “blacker-than-black” errors with fully user-adjustable upper and lower limits.

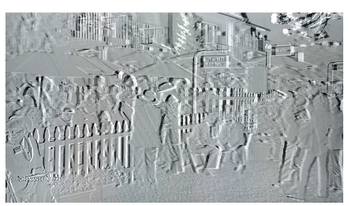
Real-Time Color Vectorscope

The built-in Vectorscope allows users to monitor color gamut range in real time. It displays in full color and can also be displayed in various sizes, positions, and transparency options. The Vectorscope has adjustable gain from 1x to 5x.

3D Production Tools

The ORCHID series now includes 3D production tools including four Anaglyph 3D modes as well as five 3D analytic views. In order to make use of 3D features the input source must be formatted as Single Channel, Side by Side, Half Horizontal view.

3D Side by Side View



3D Luminance Difference View

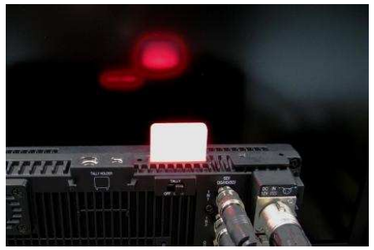
3D Anaglyph Color View

ClipGuide

The ClipGuide function operates with both the Waveform display and Monochrome/Color picture display. Both the upper and lower ClipGuide levels are user-adjustable in order to accurately display over-and-under exposures during different shooting conditions. For example, the upper ClipGuide limit may be set to 85 IRE and the lower limit to 10 IRE. With these settings, any exposures over the set limit of 85 IRE will display red on both the Waveform and picture (if selected). The same will be true for blacks under 10 IRE.

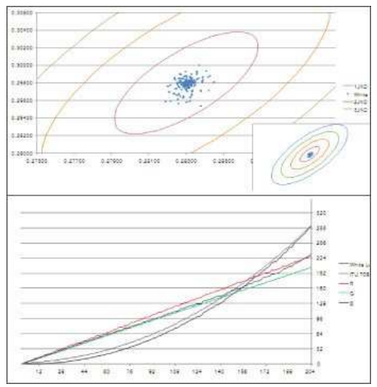
Precision Audio Level Meters

De-embeds and displays up to 16 channels of audio using sixteen 64-segment tri-color Audio Meters with user-adjustable reference levels. The Audio Level Meters provide numerical indicators and headroom levels, as well as peak hold function. Audio Channel Loss Warning prevents errors during monitoring.



Large On Air Tally

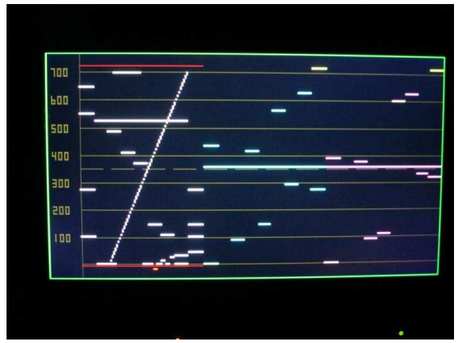
- Follows Red Tally command
- High / Low Intensity setting
- Easy to see from long distances



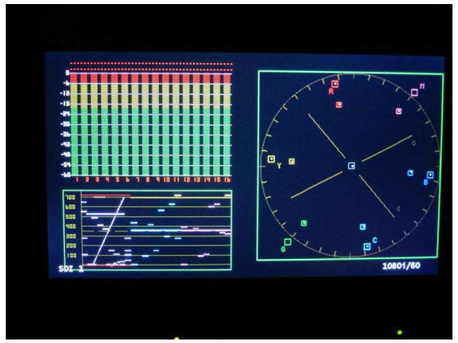
Precision White Balance with Color Temperature Adjustment

White balance adjustment is essential in order to render colors correctly. To display colors correctly, gray scale should maintain identical color temperature. The white balance for ORCHID monitors defaults to D65 (6500K) so the user does not need to adjust white balance.
LCD monitors have color-matching issues because white balance can be affected by a change in luminance level. Our unique color management system solves this problem.
The ORCHID operating system includes an Automatic White Balance function that allows a “One Button” calibration procedure when used with a Minolta CA-210 color probe. All Orchid Series LCD panels are calibrated at the factory to ensure color conformity between screens.

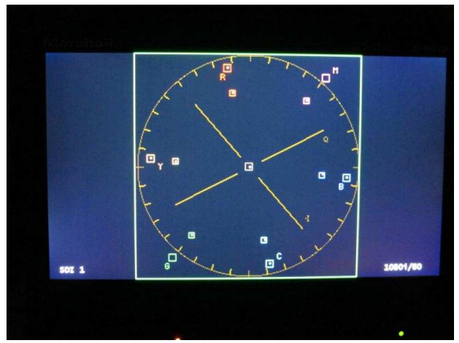
LAYOUTS



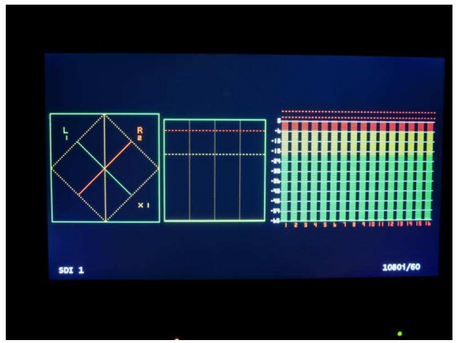
WFM Layout



WAV Layout

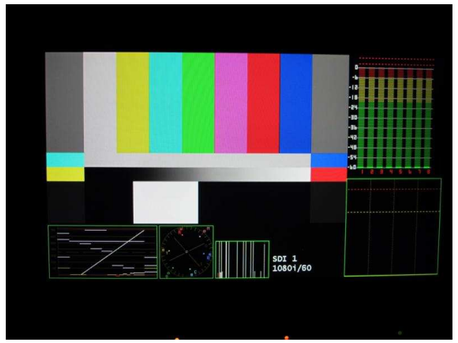


VS Layout



ALM16 Layout

QUAD Layout



QUAD2 Layout

VECTORSCOPE SUBMENU

■ Layout
Use this menu to choose from several available preset screen layouts. Choosing any of the preset layouts will override the settings in the Vectorscope, Size, and Position menus.

■ Vectorscope
Use this menu to turn the Vectorscope display On or Off when in the Normal mode.

■ Size
Use this menu to choose the size of the Vectorscope display in Normal mode. Choices are Small, Medium, and Large.

■ Position
Use this menu to select the position you want the Vectorscope display to occupy on the screen when in the Normal mode. Choices are Left Top, Left Bottom, Right Top, and Right Bottom.

■ Display Type
Use this menu to choose how to display the Vectorscope. The choices are Overlay or Overlap. In the Overlay mode, the Vectorscope will be semi-transparent and the user will be able to see the source video through the Vectorscope. In the Overlap mode, the Vectorscope will be Opaque and will block the source video.

■ Gain
Use this menu to change the gain of the Vectorscope display. Normally, the Vectorscope displays x1.00. In order to allow a magnified view, the gain is adjustable from x1.00 to x4.98 in .01 steps. Changing this value has no effect on the source material.

Select Color Temperature and Gamma Mode

Color temperature presets may be selected between D65 or D93 as well as user-definable settings. Gamma settings are adjustable from 1.0 to 3.0 in 0.1 steps. The standard setting is 2.2.

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-Assignable Function Buttons

Nine user-assignable function buttons and one Rotary Encoder on the front panel allow quick access to numerous settings and features including Input 1, Input 2, Option Input, Waveform, Vectorscope, Audio Bars, Aspect Ratio, Screen Markers, Monochrome Mode, H/V Delay Mode, and more.

AUDIO Jacks

There are two 3.5mm AUDIO jacks (one on the front panel for headphones and one on rear panel to feed an external amplifier). It is possible to utilize both the front panel headphone connector and rear panel speaker connector simultaneously with individual volume controls. When not in menu mode, the rotary encoder on the front panel may control the headphone and internal speaker volume.

Installation and Initial Setup

Unpacking

Carefully unpack the OR-901-XDI monitor and verify that the following items are included:
• OR-901-XDI Monitor
• 12V 4A 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.

Mounting

The OR-901-XDI is designed as a tabletop camera assist or tri-pod/camera-top monitor. It comes complete with tabletop stand, easy-to-carry handle on top, and is equipped with both ¼-20 and 3/8” threaded mounts on top and bottom. The included handle and stand may be removed for access to the threaded mounts.

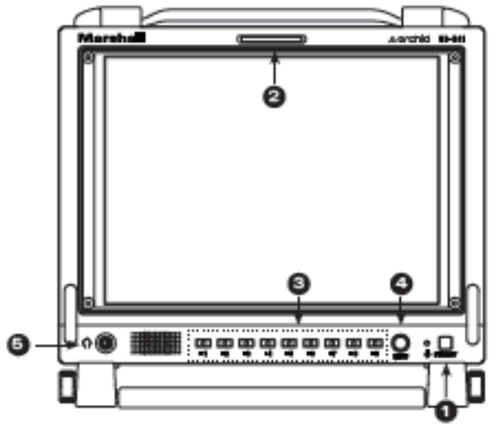
There is an optional OR-9RMK rack mount kit for mounting two OR-901-XDI units side by side in a standard 19” rack. When used in this configuration the Dual OR-901-XDI units occupy 5 RU and have a Tilt of +/- 40°.

Other optional accessories include the OR-9HO Custom Hood for daylight viewing and the OR-8HA optional side mount handle. One handle may be mounted on each side of the OR-901-XDI for easy carrying during a wireless camera shoot

Connections and Power-On

Plug the power supply into an AC power source (100-240 V @ 50/60 Hz). Attach the 4-pin female XLR connector to the back of the monitor. The monitor will draw no more than 4.0 Amps at 12 Volts in operation (24 Watts).Connect the required cables for video signal input and output (Power must be applied to the OR-901-XDI for the active loop-through and Cross Conversion outputs to be activated). All BNC connectors are rated at 75Ω. The OR-XDI is compatible with all Marshall Electronics Battery Adapters.

Front Panel Features



❶ Power Button with Indicator

Press power switch to turn on the Unit. The indicator LED will turn Green. Press again turn Off.

❷ Tri-Color Tally Light

30mm Tri-Color tally lamp controlled via the Remote connector on the rear of the unit.

❸ User-Assignable Function Keys

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

❹ Rotary Encoder

The Rotary Encoder may is used for the following five functions.

- Volume
- Peaking
- Brightness
- Contrast
- Chroma

ROTOMENU Control

Press and hold the ROTOMENU Encoder to access the on-screen Menu. Turn the encoder to the Left or Right to navigate Up and Down on the on-screen menu. Press the encoder to select the sub-menu. When you arrive at the sub-menu or value you wish to modify, turn the encoder to select the new value and then press the Encoder to save the change. If you exit the data entry submenu before pressing the Encoder, the changes will not be saved. You may exit sub-menus by turning the Encoder to the Return heading and pressing the Encoder to select, or simply by pressing the F9 key.

❺ Headphone Jack

3.5mm stereo headphone jack. Left and Right source are selected from the on-screen menu.

WAVEFORM SUBMENU

■ Layout:
Use this menu to choose from several available preset screen layouts. Choosing any of the available preset layouts will override the settings in the Waveform, Size and Position menus.

■ Waveform:
Use this menu to turn the Waveform display On or Off when in the Normal mode.

■ Size:
Use this menu to choose the size of the Waveform display in Normal mode. Choices are Small, Medium, and Large.

■ Position:
Use this menu to select the position you want the Waveform display to occupy on the screen when in the Normal mode. Choices are Left Top, Left Bottom, Right Top, and Right Bottom.

■ Display Type:
Use this menu to choose how to display the waveform. The choices are Overlay or Overlap. In the Overlay mode, the waveform will be semi-transparent and the user will be able to see the source video through the waveform. In the Overlap mode, the waveform will be Opaque and will block the source video.

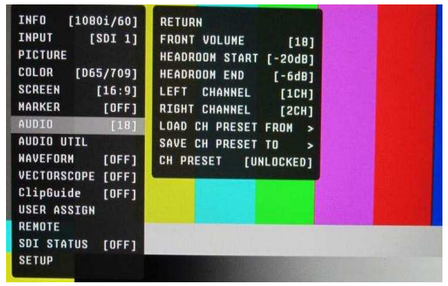
■ Y Over Limit:
Use this menu to set where you want the waveform to display Red when the video source exceeds the limit set. This value is adjustable from -7.3% to 109.1% IRE. This setting is shared with the ClipGuide Menu.

■ Y Under Limit:
Use this menu to set where you want the waveform to display Red when the video source below the limit set. This value is adjustable from -7.3% to 109.1% IRE. This setting is shared with the ClipGuide Menu.

- Limits
  - Internally, Y values ranges from 0 to 255.
  - -7.3 IRE is equal to 0 in digital.
  - 0 IRE is equal to 16 in digital.
  - 100 IRE is equal to 235 in digital.
  - 109.1 IRE is equal to 255 in digital

■ HISTOGRAM:
Use this menu to turn the Histogram function ON or OFF as well as set the Histogram display postion.

AUDIO CONFIGURATION SUBMENU



■ Front Volume
Adjusts Headphone and speaker volume on the front panel. This value is adjustable from 0 to 40. Setting to 0 will Mute the output.

■ Headroom Start
Adjusts the point at which the level meters will change color from Green to Yellow. This is normally the level used for alignment. For digital audio in the US, the SMPTE standard is -20dBFS = 0VU = +4dBu.
The European EBU standard is -18dBFS = 0VU. Other Alignment standards can be set using this menu.

■ Headroom End
Adjusts the point at which the level meters will change color from Yellow to Red. There is no official standard to where this point should occur. This is an arbitrary setting to give visual warning that the program level is peaking near the 0dBFS point at which there are no more bits and clipping will occur.

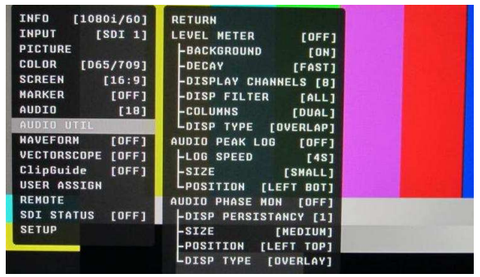
■ Left Channel / Right Channel
These menus are used to designate which one of the available 16 audio channels will be assigned to either the Left, Right, or both outputs for listening. For example, the user can choose to send CH 1 to the left output and CH 2 to the Right output, or the user can assign CH 1 to both Left and Right for a mono feed.

■ Load CH Preset From >
Use this menu to recall one of the 8 possible memory locations where the user previously stored channel output assignments. Use of this Load command will override the current channel output assignments.

■ Save CH Preset To >
Use this menu to select which one of 8 memory locations where the user wants to store the current channel output assignments.

■ CH Preset
Use this menu to Lock or Unlock the ability to save to the Ch Preset memory locations. This helps to prevent accidental overwriting of stored presets. When Locked, Ch Presets may still be recalled.

AUDIO UTILITY SUBMENU

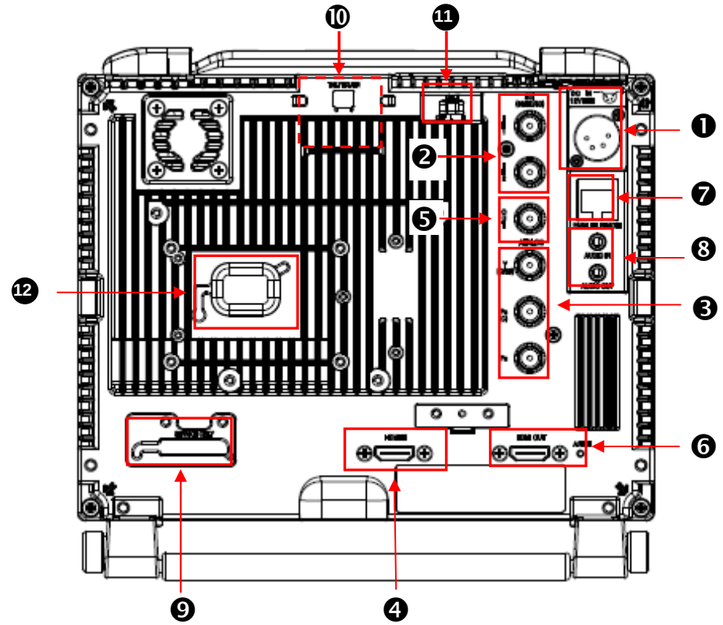


The Audio Utility Submenu contains a subset of control submenus for the various audio monitoring tools available.

- LEVEL METER
- AUDIO PEAK LOG
- AUDIO PHASE MONITOR

Please refer to the Audio Utility section of the On Screen Menu Contents section of this manual for details.

Rear Panel Features



❶ 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

❷ Digital Video Input Connectors

Dual Auto-Sensing HDSDI BNC Video inputs. There are two HDSDI video inputs.
Each input auto-detects HD and SD-SDI video signals. .

❸ Analog Video Input Connectors

Analog BNC Video Inputs. These three connectors can be used to connect Composite (CVBS), S-Video (Y,C), or Component (Y,PB,PR) Analog video signals. (High definition analog inputs will automatically be converted to SDI on the BNC video output connector)

❹ HDMI Input

HDMI Type A connector used for HDMI video signals.

❺ Video Output

HD-SD/SDI video output. The signal that appears at this connector will either be a loop through from the Digital Video Input connectors or a converted signal from the analog video inputs or the HDMI input which ever is selected as the input source.

Rear Panel Features

❻ HDMI Output with Active Indicator

HDMI(TYPE-A), Loop through & Cross converted, HDCP enabled output. The Active LED will illuminate when the output is connected to a valid HDMI input.

❼ GPI Input

RJ-45 connector for 7 user-assignable GPI inputs. Assignable using the on-screen menu.

❽ Audio Input and Output Jacks

3.5mm stereo line level input and outputs for monitoring analog or embedded audio channels. The desired audio channels are selected in the Audio onscreen menu. The output level is also controlled through the Audio onscreen menu.

❾ Service Port

Proprietary connection used for firmware upgrades and LCD color balance calibration. An optional Service Module is required. (Part number OR-SM)

❿ On Air Tally Indicator Storage Area

Storage area for the removable talent On Air Tally.

⓫ On Air Tally OFF / DIM / ON Switch

Controls the brightness of the talent On Air Tally and turns off the tally.

⓬ External Battery Connector

For use with optional battery mounts.

MARKER CONFIGURATION SUBMENU

Marker:

Use this setting to enable or disable all on-screen markers. This setting affects the Center marker, Aspect markers, and Safety marker.

Center Marker:

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

Aspect Markers:

Use these settings to superimpose one of 6 markers on the screen when in 16:9 mode.

- 4:3
- 16:9
- 1.85:1
- 2.35:1
- 4:3 and 1.85:1
- 4:3 and 2.35:1

Safety Marker:

Use this setting to adjust the safety marker from 80% to 100% (Off) in 1% steps and USER

USER MARKER

- Selecting USER will display the last defined user configured marker.
  - To configure a user marker you must have User Marker assigned to one the nine Function keys.
    - Press the assigned Function key to display the User Marker
    - Follow the On Screen instructions to adjust the size and placement of the User Marker.

Cross Hatch:

Uses this to select one of the following grid patterns.

- OFF
- SMALL
- MEDIUM
- LARGE

Marker Mat:

Use this setting to change the format of the marker curtains between Clear, Halftone, or Black.

Line Thickness:

Use this setting to choose the line thickness of the markers from 1, 2, or 3 pixels thick.

Line Type:

Use this setting to select the style of line used for markers between White, Halftone, and Invert.

SCREEN SUBMENU

■ Scan

- Normal (Zero Scan)
  The whole picture should be visible without any cropping. When in normal mode you should not see non-active areas such as SAV, EAV.
- Over (End-User TV Production Scan)
  5% of the picture is cropped and zoomed to fill the screen. After cropping, it will maintain correct aspect ratio and center.
- Zoom
  When in zoom mode, the center portion of the picture is Magnified to fill the screen by approximately 4x.

■ Aspect Ratio Settings:

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

The 960 x 540 resolution panel was chosen to allow monitoring of HD 1920 x 1080 video formats without scaling artifacts

■ Mono / Color:

Use the Mono / Color modes for monitor calibration or to analyze individual color components of an image.

- RGB = displays all three colors (Normal display)
- Mono = displays as monochrome
- Red Channel = displays red channel only
- Green Channel = displays green channel only
- Blue Channel = displays blue channel only

■ H/V Delay:

Use this setting to enable H & V Delay

In H & V Delay mode, both horizontal sync and vertical sync are delayed, resulting in both horizontal and vertical blanking periods being shown at the center of the screen.

■ Shift H:

Use the RotoMenu control to change the value of this setting which will shift the picture horizontally. Negative values will move the picture Right, while Positive values will move the picture Left. [0] is center value.

■ Shift V:

Use the RotoMenu control to change the value of this setting, which will shift the picture Vertically. Negative values will move the picture DOWN, while Positive values will move the picture UP.

■ 3D Review:

Use this to control the 3D monitoring modes

- OFF
- LEFT EYE
- RIGHT EYE
- BLENDING
- LUMINANCE DIFF.
- CHROMA DIFF

■ Anaglyph:

Use this for monitoring the 3D image using Anaglyph Glasses.

- OFF
- COLOR
- HALF COLOR
- OPTIMIZED
- GRAY

Compatible Formats

OR-901-XDI Supported video formats

	Video Signal Formats	Interface				
		SDI	HDMI	CVBS	Y/C	Component YPbPr/RGsB
SD	NTSC	-	-	O	O	-
	PAL	-	-	O	O	-
	480/60i	O	O	O	O	O
	576/50i	O	O	O	O	O
ED	480/60p	-	O	-	-	O
	576/50p	-	O	-	-	O
HD	720/60p	O	O	-	-	O
	720/50p	O	O	-	-	O
	720/30p	O	O	-	-	O
	720/25p	O	O	-	-	O
	720/24p	O	O	-	-	O
	1080/60i(30PsF)	O	O	-	-	O
	1080/50i(25PsF)	O	O	-	-	O
	1080/48i(24PsF)	O	-	-	-	O
	1080/30p	O	O	-	-	O
	1080/25p	O	O	-	-	O
	1080/24p	O	O	-	-	O
3G	1080/60p	O	O	-	-	O
	1080/50p	O	O	-	-	O
PC	VGA/60	-	O	-	-	O
	SVGA/60	-	O	-	-	O
	XGA/60	-	O	-	-	O
	SXGA/60	-	O	-	-	O
	UXGA/60	-	O	-	-	O
		-	-	-	-	-

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COLOR SUBMENU

The Color submenu allows the user to access to the Color Management Controls.

■ Color Matrix
- ➢ Auto
  - o System automatically selects correct matrix.
  - o Typically, 601 for SD Formats, 709 for HD Formats.
- ➢ RGB
- ➢ User can manually set to RGB.
  - o RGB should be used with GBR422 systems.
- ➢ 601
  - o Conforms to ITU-R BT.601 matrix.
- ➢ 709
  - o Conforms to ITU-R BT.709 matrix.

■ Color Temp

Use this setting to choose between color temperature presets and the two available False Color Filters:
- ➢ False Color MTF
  - o False Color Filter based on Flesh Tone values.
- ➢ False Color TG
  - o False Color Filter based on color temperature gradient.

- ➢ D65 (6500K). Conforms to CIE D65 White Point. x = 0.3127, y = 0.3290
- ➢ D93 (9300K). Conforms to Japanese D93 White Point. x = 0.2830 y = 0.2980
- ➢ USER (Adjustable Color Bias and Gain)
- ➢ CAL D65/D93
  - o Used to activate the built in Automatic Color Calibration program for both D65 and D93.
- ➢ CAL D65
  - o Used to activate the built in Automatic Color Calibration program for D65 only.
- ➢ CAL D93
  - o Used to activate the built in Automatic Color Calibration program for D93 only.

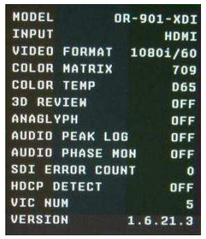
NOTE: When using the built in Color Calibration program an optional OR-SM service module is required along with a Minolta® CA-210 or CA-310 color probe.

■ 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 CUSTOM when Color Bias or Gain settings are adjusted. It is normal for color bias adjustments to be very subtle. When selecting the RGB Bias and Gain submenus, changes to Gain and Bias will be seen in real time. Once the proper level is achieved, the user must save this setting by pressing the Menu Rotary Encoder. If the user leaves the setting menu before saving, the value will return to the original setting.

Menus and Navigation

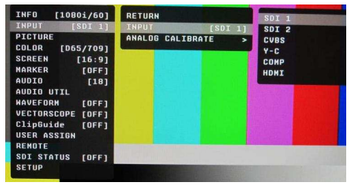
To access the menu system Press and Hold the MENU Rotary Encoder for 3 seconds.

- Step through menu items by using the RotoMenu control.
- Choose a submenu or select a menu item by pushing the
- RotoMenu control.
- Return to the previous menu by pressing the F-9 button.
- Exit the main menu by again pressing the F-9 button.



INFO SUBMENU

The INFO Submenu is a read-only display that gives the user information about the current status of the monitor and selected input signal being viewed.
No adjustment can be made from this submenu.



INPUT SUBMENU

The Input submenu allows the user to select the input from any of the available sources:

PICTURE SUBMENU

The Picture submenu allows the user to make adjustments to Brightness, Contrast, Saturation, Sharpness and Gamma.

- Brightness
  - Varies between 0 and 100 (50 is standard).
  - 50 is default value with standard black level.
  - Increasing brightness level allows user to see BTB (Blacker-than-Black).
- Contrast
  - Varies between 0 and 100 (80 is standard).
  - 80 is default value with 100% gain of video signal.
- Saturation
  - Varies between 0 and 100 (50 is standard).
  - 50 is default value with nominal color saturation.
  - Setting to 0 should display as monochrome.
  - Increasing the value will increase color saturation.
- Sharpness
  - Varies between 0 and 100 (50 is standard).
  - 0 is default value with no scaling artifact.
- Gamma
  - Varies between 1.0 and 3.0 with 0.1 steps.
  - If White Balance is set to User Mode, changing gamma will have no effect

On Screen Menu Contents

INFO	MODEL NAME	OR-901-XDI
	INPUT	SDI 1
	VIDEO FORMAT	1080i / 60
	COLOR MATRIX	709
	COLOR TEMP	D65
	3D REVIEW	OFF
	ANAGLYPH	OFF
	AUDIO PEAK LOG	OFF
	AUDIO PHASE MONITOR	OFF
	SDI ERROR COUNT	0
	SDI LEVEL	
	UNKNOWN	
	VERSION	1.2
INPUT	RETURN	
	INPUT SELECT	SDI 1
		SDI 2
		CVBS
		Y-C
		COMP
		HDMI
	Analog Calibrate	>
PICTURE	RETURN	
	BRIGHT	0~100 [50] is Calibrated Setting
	CONTRAST	0~100 [80] is Calibrated Setting
	CHROMA	0~100 [50] is Calibrated Setting
	GAMMA	1.0 to 3.0 in 0.1 steps [2.2] is Calibrated Setting
	RESET TO PICTURE	CANCEL / RESET NOW
COLOR	RETURN	
	COLOR MATRIX	AUTO
		RGB
		BT. 601
		BT. 709
	COLOR TEMP	FALSE COLOR MTF
		FALSE COLOR TG
		CIE D65
		CIE D93
		USER
		CAL D65 & D93
		CAL D65
		CAL D93
	RED BIAS	-128 to 127 [0] is Calibrated Setting
	GREEN BIAS	-128 to 127 [0] is Calibrated Setting
	BLUE BIAS	-128 to 127 [0] is Calibrated Setting
	RED GAIN	0.500 to 1.992 [x1.00] is Calibrated Setting
	GREEN GAIN	0.500 to 1.992 [x1.00] is Calibrated Setting
	BLUE GAIN	0.500 to 1.992 [x1.00] is Calibrated Setting

On Screen Menu Contents

SCREEN	RETURN	
	SCAN	NORMAL, OVERSCAN, ZOOM
	ASPECT	AUTO
		4:3
		16:9
		PAYLOAD
	MONO / COLOR	RGB
		MONO
		RED
		GREEN
		BLUE
	H/V DELAY	ON / OFF
	SHIFT H	-128 to 127 [0] is Calibrated Setting (- = Right)
	SHIFT V	-128 to 127 [0] is Calibrated Setting (- = Down)
	3D REVIEW	OFF
		LEFT EYE
		RIGHT EYE
		BLENDING
		LUMINANCE DIFF.
		CHROMA DIFF.
	ANAGLYPH	OFF
		COLOR
		HALF COLOR
		OPTIMIZED
		GRAY
MARKER	RETURN	
	MARKER	ON / OFF
	CENTER	ON / OFF
	ASPECT RATIO	OFF
		4:3
		16:9
		1.85 :1
		2.35 :1
		4:3 & 1.85
		4:3 & 2.35
	SAFETY ZONE	80% to 100% (OFF) [95%] is normal setting
	CROSS HATCH	OFF
		SMALL
		MEDIUM
		LARGE
	MARKER MAT	CLEAR, HALFTONE, BLACK
	LINE THICKNESS	1, 2, 3
	LINE LEVEL	GRAY, HALFTONE, WHITE, INVERT

On Screen Menu Contents

REMOTE	PIN 1 THRU 8 (Pin 5 is Ground)	WAVEFORM MON
		VECTORSCOPE
		CLIPGUIDE
		TIMECODE LTC
		TIMECODE VITC 1
		TIMECODE VITC 2
		HISTOGRAM
		FALSE COLOR TG
		FALSE COLOR MTF
		3D LEFT EYE
		3D RIGHT EYE
		3D BLENDING
		3D LUMA DIFF
		3D CHROMA DIFF
		GLYPH COLOR
		GLYPH 1/2 COLOR
		GLYPH OPTIMIZED
		GLYPH GRAY
		HIDE ALL UTIL
		R TALLY
		G TALLY
		B TALLY
		LEFT R TALLY
		LEFT G TALLY
		LEFT B TALLY
		RIGHT R TALLY
		RIGHT G TALLY
		RIGHT B TALLY
SDI STATUS	RETURN	
	ERROR COUNT	0 - 9999
	RESET COUNTER	
	DISPLAY	OFF / ON / AUTO
SETUP	RETURN	
	FORMAT DISPLAY	AUTO / ON / OFF
	TIMECODE	OFF
		LTC
		VITC 1
		VITC 2
	USERBIT	ON / OFF
	POWER SAVE	ALWAYS ON
		2 MIN
		5 MIN
		10 MIN
		30 MIN
		1 HOUR
		2 HOUR
	KEY LOCK	LOCK / UNLOCK
	PICTURE DELAY	NORMAL / FAST / FASTEST
	BACKLIGHT	MIN (25) TO 100
	RESET TO MFG DEFAULT >	RESET NOW / CANCEL
	BACKUP USER CONFIG >	BACKUP NOW / CANCEL
	RESTORE USER CONFIG	RESTORE NOW / CANCEL
	FAN CONTROL	AUTO, MAX, OFF

On Screen Menu Contents

REMOTE	RETURN	
	PIN 1 THRU 8 (Pin 5 is Ground)	SDI 1
		SDI 2
		CVBS
		Y-C
		COMP
		HDMI
		GAMMA 1.0
		GAMMA 1.8
		GAMMA 2.0
		GAMMA 2.2
		GAMMA 2.4
		GAMMA 2.6
		WHITEBLANCE D65
		WHITEBALANCE D93
		MONO
		SCAN
		ASPECT
		ZOOM
		HV DELAY
		RED ONLY
		BLUE ONLY
		GREEN ONLY
		MARKER
		USER MARKER
		G MARKER
		AUDIO METER
		AUDIO PEAK LOG
		AUDIO MONITOR
		AUDIO PRESET 1
		AUDIO PRESET 2
		AUDIO PRESET 3
		AUDIO PRESET 4
		AUDIO PRESET 5
		AUDIO PRESET 6
		AUDIO PRESET 7
		AUDIO PRESET 8
		AUDIO MUTE
		LAYOUT WFM
		LAYOUT WAV
		LAYOUT VS
		LAYOUT ALM 16
		LAYOUT QUAD
		LAYOUT QUAD 2

On Screen Menu Contents

AUDIO	RETURN	
	FRONT VOLUME	0 TO 40
	HEADROOM START	-6 to -60 [-20] is SMPTE Standard
	HEADROOM END	0 to -20 [-6] is Normal setting
	LEFT CHANNEL	CHANNEL1 TO CHANNEL 16
	RIGHT CHANNEL	CHANNEL1 TO CHANNEL 16
	LOAD CH PRESET FROM >	PRESET 1 to PRESET 8
	SAVE CH PRESET TO >	PRESET 1 to PRESET 8
	CH PRESET	LOCK / UNLOCK
AUDIO UTIL	RETURN	
	LEVEL METER	ON / OFF
	METER BACKGROUND	ON / OFF
	DECAY	FAST, MEDIUM, SLOW
	DISPLAY CHANNELS	1~16
	ACTIVE CH ONLY	ACTIVE, ALL
	METER COLUMNS	DUAL, QUAD
	DISP TYPE	OVERLAP, OVERLAY
	AUDIO PEAK LOG	ON / OFF
	LOG SPEED	4S
		8S
		20S
		60S
		120S
		300S
	SIZE	LARGE, SMALL
	POSITION	LEFT TOP
		LEFT BOT
		RIGHT TOP
		RIGHT BOT
	AUDIO PHASE MON	OFF
		ON x1
		ON x2
		ON x4
		ON x8
	DISP PERSISTANCY	1 FRAME
		4 FRAME
		8 FRAME
		16 FRAME
	SIZE	SMALL, MEDIUM, LARGE
	POSITION	LEFT TOP
		LEFT BOT
		RIGHT TOP
		RIGHT BOT
	DISP TYPE	OVERLAP, OVERLAY

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WAVEFORM	RETURN	
	LAYOUT	NORMAL
		WFM
		ALM16
		QUAD
		QUAD2
	WAVEFORM	OFF
		WHITE
		PARADE
	SIZE	SMALL, MEDIUM, LARGE
	POSITION	LEFT TOP
		LEFT BOT
		RIGHT TOP
		RIGHT BOT
	TYPE	OVERLAY / OVERLAP
	Y OVER LIMIT	[100.0%] % IRE 0% to 109.1%
	Y UNDER LIMIT	[100.0%] % IRE -7.3% to 109.1%
	HISTOGRAM	ON / OFF
	POSITION	LEFT TOP
		LEFT BOT
		RIGHT TOP
		RIGHT BOT
VECTORSCOPE	RETURN	
	LAYOUT	NORMAL
		WFM
		ALM16
		QUAD
		QUAD2
	Vector Scope	ON / OFF
	SIZE	SMALL, MEDIUM, LARGE
	POSITION	LEFT TOP
		LEFT BOT
		RIGHT TOP
		RIGHT BOT
	TYPE	OVERLAY / OVERLAP
	GAIN	X1.00 to X1.91 in .01 steps
CLIPGUIDE	RETURN	
	ClipGuide	ON / OFF
	MODE	LUMA (Y)
		LUMA (Y) ON MONO
		CHROMA (C)
		CHROMA (C) ON MONO
		Y & C
		Y & C ON MONO
	DISPLAY TYPE	ZEBRA / FILL
	Y UPPER LIMIT	[100.0%] % IRE -7.3% to 109.1%
	Y UNDER LIMIT	[0.0%] % IRE -7.3% to 109.1%
	C UPPER LIMIT	0~255 [016 = 7.5 IRE, 235 = 100 IRE]
	C LOWER LIMIT	0~255 [016 = 7.5 IRE, 235 = 100 IRE]

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USER ASSIGN	RETURN	
	F-1 THRU F-9	SDI 1
		SDI 2
		CVBS
		Y-C
		COMP
		HDMI
		GAMMA 1.0
		GAMMA 1.8
		GAMMA 2.0
		GAMMA 2.2
		GAMMA 2.4
		GAMMA 2.6
		WHITEBALANCE D65
		WHITEBALANCE D93
		MONO
		COLOR CHANNEL
		SCAN
		ASPECT
		ZOOM
		HV DELAY
		MARKER
		USER MARKER
		G MARKER
		AUDIO METER
		AUDIO PEAK LOG
		AUDIO MONITOR
		AUDIO PRESET 1
		AUDIO PRESET 2
		AUDIO PRESET 3
		AUDIO PRESET 4
		AUDIO PRESET 5
		AUDIO PRESET 6
		AUDIO PRESET 7
		AUDIO PRESET 8
		AUDIO MUTE
		LAYOUT WFM
		LAYOUT WAV
		LAYOUT VS
		LAYOUT ALM 16
		LAYOUT QUAD
		LAYOUT QUAD 2
		WAVEFORM MON
		VECTORSCOPE
		CLIPGUIDE
		TIMECODE
		HISTOGRAM
		FALSE COLOR TG
		FALSE COLOR MTF
		PEAKING COLOR
		3D REVIEW
		ANAGLYPH
		FAN STOP
		HIDE ALL UTIL