

# Marshall Electronics

 orchid OR-185

Fully Featured 18.5" Master Confidence Monitor

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## Operating Instructions

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## NOTES

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## 1. Product Overview

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The OR-185 was designed as an 18.5" Master confidence monitor for broadcast control rooms, transfer facilities, and other production control and editing areas. The OR-185 includes a wide variety of production tools used by video professionals including real-time Waveform, Vectorscope, Histogram, Audio Level Meters, Audio Phase Monitor and Audio Peak Alarm, along with 3D monitoring and analysis function.

The OR-185 uses a 1920 x 1080 Full HD panel that can display high-quality images from any source or aspect ratio. All OR-185 screens are color matched at the factory.

The OR-185 comes standard with two auto-sensing 3G-SDI inputs, along with DVI-I, VGA, and analog inputs. This unit can be used as a portable stand alone monitor equipped with front panel stereo speakers, integrated carrying handle, and desktop stand. An optional rack mount kit with tilt capability is also available.

The OR-185 has 7 user-assignable function keys as well as 4 rotary encoders for simple access to various monitor settings and functions. Analysis functions and measured data graphics are displayed as overlays while original video images remain intact. Additional display options include full screen views of the Waveform, Vectorscope, Audio data, and "Quad View" layouts.

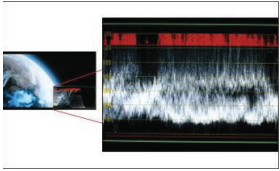
The OR-185 can de-embed and display up to 16 channels of audio using up to sixteen 64-segment Tri-color Audio Meters with user-adjustable reference levels. The Audio Level Meter also provide numerical indicators of headroom levels and a peak hold function. The Audio Channel Loss warning feature alerts the user with any detected audio errors during monitoring.

Other advanced features include 3D Review, Anaglyph 3D Views, Side-by-Side 3D, False Color Mapping, ClipGuide, Color Peaking Filter, and more.

## Features

### High Resolution 18.5" Panel

The OR-185 features an all-digital TFT-MegaPixel active matrix LCD system. The LCD panel features a nominal brightness of 300 cd/m<sup>2</sup> and a contrast ratio of 1000:1 making this display ideal in a variety of environments and lighting conditions.



### 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 not only monitors luminance, but can also warn the user for out-of-range conditions such as overexposure or “blacker-than-black” errors with fully user-adjustable warning 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.



### 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.

### Chroma monitor function

Included in the ClipGuide menu are settings for monitoring color gamut errors, which can occur in color space conversion. Any data exceeding these values will be displayed as Yellow in the picture. The factory presets for limits are 16 and 240 (0-255 scale) according to ITU-R BT.709. Typically, these values should not be exceeded during normal video production.

## 10. Warranty

Marshall Electronics warranties to the first consumer that this OR-185 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 affective 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 extended the duration of any warranties on behalf of Marshall Electronics, beyond the time period describe above.

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

## 9. Maintenance / Upgrade Procedure

### Screen Cleaning

Periodically clean the screen surface using ammonia-free cleaning wipes (Marshall Part No. V-HWPCK). 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.

### Firmware Update

An optional OR-SM Service Module and connection to the internet is required for this procedure.

1. Download the Orchid updater 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 updater program and the 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:

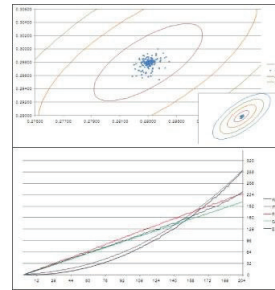
- The update process will take approximately 8 minutes.
- If the update program does not automatically detect your Orchid model you will be asked to choose the appropriate model from a drop down list then click update again.
- Clicking on details allows you to monitor the update process

## Features



### 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 calls attention to errors during monitoring.



### Precision White Balance

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 typically does not need to adjust white balance. All Orchid Series LCD panels are calibrated at the factory to ensure color conformity between screens.

### Select color temperature and gamma mode

Color temperature presets may be selected between D65 or D93 as well as user-defined settings. Gamma settings are adjustable from 1.0 to 3.0 in 0.1 steps. The default 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-Definable Function Buttons

Eleven user-definable function buttons and four Rotary Encoders on the front panel allow quick access to numerous settings and features including Input 1, Option Input, Waveform, Vectorscope, Audio Bars, aspect ratio, screen markers, monochrome mode, H/V delay mode, and more.

### Audio Jacks

A **3.5mm headphone jack** is on the front panel and the headphone volume control can be found in the AUDIO menu. **3.5mm Audio line in and Audio line out** jacks are on the rear panel. Audio line in can be used as a source for the speakers.

## 2. Installation and Initial Setup

### Unpacking

Carefully unpack the OR-185 monitor and verify that the following items are included:

- OR-185 Monitor with attached desk stand
- Power cord
- Operating Instructions (This Manual)

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

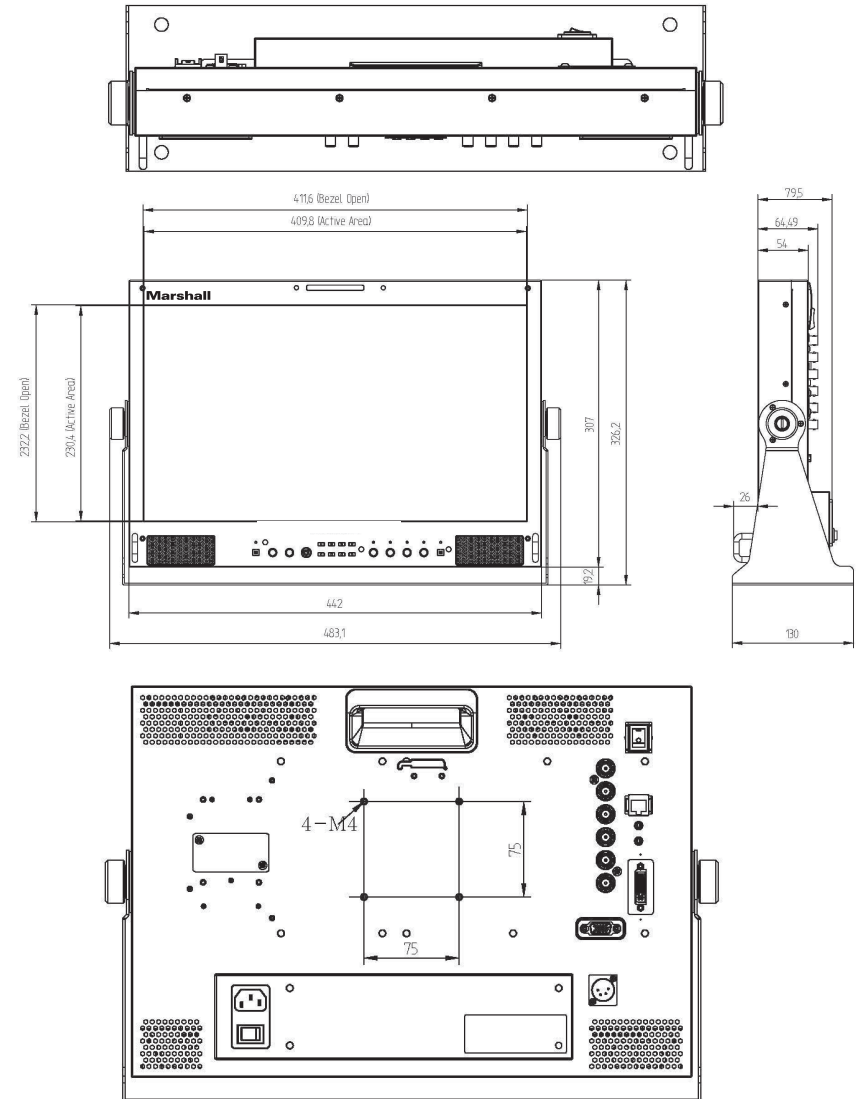
The OR-185 is designed as a tabletop production monitor. It comes complete with attached stand and tilt handle.

### Connections and Power-On

The OR-185 can receive power from a standard AC power outlet (100~220VAC) or a 24VDC 4-pin XLR power supply.

Connect the required cables for video signal input and output (power must be applied to the OR-185 for the active loop-outputs to be activated). All BNC connectors are rated at 75Ω.

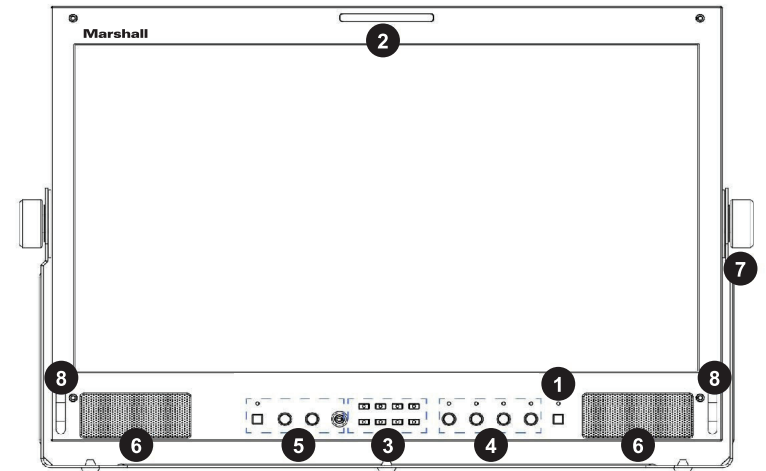
## 8. Dimensions (mm)



## 7. On-Screen Menu Contents

USER ASSIGN	FUNCTION 1-7	SD11, SDI2, CVBS, Y-C, COMP, DVI-D, DVI-A, HD15, GAMMA (1.0-2.34), WHITE BAL D65/D93, MONO, COLOR CHANNEL, SCAN, ASPECT, MAGNIFY, HV DELAY, PIXEL BY PIXEL, MARKER, USER MARKER, AUDIO METER, AUDIO PEAK LOG, AUDIO PHASE MON, AUDIO SPECTRUM, AUDIO PRESET (1-8), AUDIO MUTE, LAYOUT DECK, LAYOUT QUAD, WAVEFORM MON, VECTORSCOPE, CLIPGUIDE, TIMECODE, HISTOGRAM, FALSE COLOR TG/MTF, 3D REVIEW, ANAGLYPH, FAN STOP, HIDE ALL UTIL, 3D LEFT/RIGHT EYE, 3D BLENDING, 3D LUMA/CHROMA DIF, GLYPH COLOR/ HALF COLOR/ OPTIMIZED/ GRAY.
REMOTE	Pin 1- 8	R/G/B TALLY, LEFT R/G/B TLY, RIGHT R/G/B TLY, POWER SAVE, NEUTRAL, SD11, SDI2, CVBS, Y-C, COMP, DVI-D, DVI-A, HD15, GAMMA (1.0-2.34), WHITE BAL D65/D93, MONO, COLOR CHANNEL, SCAN, ASPECT, MAGNIFY, HV DELAY, RED/BLUE/GREE ONLY, PIXEL TO PIXEL, MARKER, USER MARKER, AUDIO METER, AUDIO PEAK LOG, AUDIO PHASE MON, AUDIO SPECTRUM, AUDIO PRESET (1-8), AUDIO MUTE, LAYOUT DECK, LAYOUT QUAD, WAVEFORM MON, VECTORSCOPE, CLIPGUIDE, TIMECODE (LTC/VITC 1-2), HISTOGRAM, FALSE COLOR TG/MTF, 3D LEFT/RIGHT/BLENDING, 3D LUMA DIF, CHROMA DIF, GLYPH COLOR/ HALF COLOR/ OPTIMIZED/ GRAY, HIDE ALL UTIL
SDI STATUS	ERROR COUNT	INFINITE
	RESET COUNTER	RESET THE COUNT
	DISPLAY	OFF, ON, AUTO
IMD	IMD	OFF, ON
	COLOR	WHITE, RED, BLUE, GREEN
	PRESET IMD	CAMERA 1/ 2, MONITOR 1/ 2, VTR 1/ 2, PROGRAM, PREVIEW, AUX, RECORD
	CUSTOM IMD	ABC, 123, %#\$
	SIZE	SMALL, LARGE
SETUP	POSITION	TOP, BOTTOM
	FORMAT DISPLAY	AUTO, ON, OFF
	VPID DETECT	OFF, ON
	TIMECODE	OFF, LTC, VITC1, VITC2, SIZE (SMALL/LARGE), POSITION (TOP/BOTTOM)
	USERBIT	OFF, ON
	POWER SAVE	ALWAYS ON, 2MIN - 2HOURS
	KEY LOCK	UNLOCK, LOCK
	PICTURE DELAY	NORMAL, FAST, FASTEST, (SDI ONLY)
	BACKLIGHT	0 - 100%
	RESET TO MFG DEFAULT	CANCEL, RESET NOW
BACKUP USER CONFIG	CANCEL, BACKUP NOW	
RESTORE USER CONFIG	CANCEL, RESTORE NOW	

## 3. Front Panel Features



### 1. Standby Switch Button with Indicator

Press this button to put the Unit into operation mode. The indicator LED will turn Green. Press again to put the Unit into standby mode. The LED will turn Red.

### 2. Tri-Color Tally Light

30mm Tri-Color tally lamp (Red, Green, Yellow) controlled via the Remote connector on the rear of the unit.

### 3. User-Definable Function Keys

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

### 4. User-Defined Rotary Encoder

The Rotary Encoder may be assigned to one of several functions through the User Assign menu. The available functions are: Brightness / Contrast / Saturation / Sharpness.

### 5. Audio Control

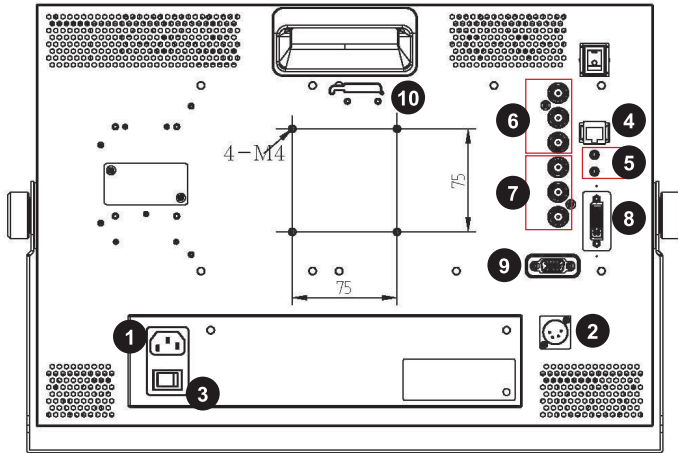
Mute / Volume / Balance / 3.5mm stereo headphone jack.

### 6. 3W+3W Stereo Speakers

### 7. Attached Tilting Stand

### 8. Tilt Handle

## 4. Rear Panel Features



### 1. AC Power Input and AC On/Off Switch

Connect to 100 ~ 220 VAC power source. The switch will turn the internal power supply on and off. When using an external 24vDC supply this switch will have no effect.

### 2. 24VDC Power Input

Connect 24VDC to the 4-pin XLR power input connector. Power can be supplied by a variety of DC sources supplying at least 1.7 Amp at 24 Volts.

#### IMPORTANT:

When using a 24VDC 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: +24VDC

### 3. Main Power Switch

This switch is the Main power switch. When using the AC power or an external DC supply, this switch will control the On/Off status of the monitor. When using AC power, both switches must be on.

### 4. GPI Input

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

### 5. Audio Input and Output Jacks

Stereo line level input plus outputs for monitoring analog or embedded audio channels. The desired audio monitor channels are selected in the audio onscreen menu. The output level is controlled there as well.

## 7. On-Screen Menu Contents

SCREEN	SCAN	NORMAL, OVERSCAN, MAGNIFY, PXBYPX	
	ASPECT	AUTO, 4:3, 16:9, 1.85:1, 2.35:1, PAYLOAD	
	MONO / COLOR	RGB, MONO, RED, GREEN, BLUE	
	H/V DELAY	ON / OFF	
	SHIFT H	-128 to 127	
	SHIFT V	-128 to 127	
	3D REVIEW	OFF, LEFT/RIGHT EYE, BLENDING, LUMINANCE DIFF., CHROMA DIFF.	
	ANAGLYPH	OFF, COLOR, HALF COLOR, OPTIMIZED, GRAY	
	MARKER	OFF, ON	
	CENTER	OFF, ON	
MARKER	ASPECT	OFF, 4:3-16:9, 1.85:1, 2.35:1, 4:3 & 1.85:1, 4:3 & 2.35	
	SAFETY ASPECT	OFF, 4:3, 16:9, USER (80-99% RATIO)	
	CROSS HATCH	OFF, SMALL, MEDIUM, LARGE	
	MARKER MAT	CLEAR, HALFTONE, BLACK	
	LINE THICKNESS	1-3	
	LINE TYPE	GRAY, HALFTONE, WHITE, INVERT	
	FRONT VOLUME	0-40	
	HEADROOM START	-6 ~ -60dB	
	HEADROOM END	-20 ~ -60dB	
	LEFT CHANNEL	1-16	
AUDIO	RIGHT CHANNEL	1-16	
	LOAD CH PRESET FROM	1-8 PRESETS	
	LOAD CH PRESET TO	1-8 PRESETS	
	SAVE CH PRESET TO	1-8 PRESETS	
	CH PRESET	UNLOCK, LOCK	
	SOURCE	EMBEDDED, AUDIO IN	
	LEVEL METER	BACKGRD, DECAY, DISP CHANNELS, DISP FILTER, COLUMN, DISP TYPE	
	AUDIO PEAK LOG	LOG SPEED, SIZE, POSITION	
	AUDIO PHASE MONITOR	DISP PERSISTENCY, SIZE, POSITION, DISP TYPE	
	AUDIO SPECTRUM	DECAY, SIZE, POSITION, DISP TYPE	
AUDIO UTIL	LAYOUT	NORMAL, DECK, QUAD	
	WAVEFORM	OFF, Y WFM, YCBCR WFM, GBR WFM	
	SIZE	SMALL, MEDIUM, LARGE	
	POSITION	LEFT TOP, LEFT BOT, RIGHT TOP, RIGHT BOT	
	DISP TYPE	OVERLAP, OVERLAY	
	Y OVER LIMIT	-7.3% ~ 109.1%	
	Y UNDER LIMIT	-7.3% ~ 109.1%	
	GRATICULE	PERCENT, DIGITAL 8BIT, DIGITAL 10BIT, mV	
	HISTOGRAM	OFF, Y ONLY, RGB OVERLAY, RGB PARADE, POSITION	
	LAYOUT	NORMAL, DECK, QUAD	
WAVEFORM	VECTORSCOPE	OFF, ON	
	SIZE	SMALL, MEDIUM, LARGE	
	POSITION	LEFT TOP, LEFT BOT, RIGHT TOP, RIGHT BOT	
	DISP TYPE	OVERLAP, OVERLAY	
	GAIN	X1.00 ~ X4.98	
	VECTORSCOPE	ClipGuide	OFF, ON
		MODE	LUMA, LUMA/MONO, CHROMA, CHROMA/MONO, LUMA/CHROMA, LUMA/CHROMA/MONO
		DISPLAY TYPE	FILL, ZEBRA
		Y UPPER LIMIT	-7.3% ~ 109.1%
		Y LOWER LIMIT	-7.3% ~ 109.1%
C UPPER LIMIT		0-255	
C LOWER LIMIT		0-255	

## 7. On-Screen Menu Contents

INFO	MODEL NAME	OR-185
	INPUT	
	VIDEO FORMAT	
	COLOR MATRIX	
	COLOR TEMP	
	3D REVIEW	
	ANAGLYPH	
	AUDIO PEAK LOG	
	AUDIO PHASE MONITOR	
	SDI ERROR COUNT	0
	HDCP DETECT	
	VIC NUM	
	VERSION	X.X.XX
INPUT	INPUT SELECT	SDI 1
		SDI 2
		CVBS
		Y-C
		COMP
		DVI-D
		DVI-A
	HD-15	
ANALOG CALIBRATE	>	
PICTURE	BRIGHT	0-100 [50] is Calibrated setting
	CONTRAST	0-100 [50] is Calibrated setting
	CHROMA	0-100 [50] is Calibrated setting
	SHARPNESS	0-100 [50] is Calibrated setting
	GAMMA	1.0 to 3.0 in 0.1 steps [2.2] is Calibrated Setting
	RESET TO DEFAULT	CANCEL / RESET NOW
COLOR	COLOR MATRIX	AUTO
		RGB
		BT. 601 BT. 709
	COLOR TEMP	FALSE COLOR MTF
		FALSE COLOR TG
		CIE D65 JP D93 USER 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	

## 4. Rear Panel Features

### 6. 3G-HD-SDI Digital Video Input Connectors

Dual auto-sensing BNC video inputs. Each input auto-detects 3G, HD and SD-SDI video signals.

### 7. Analog Video Input Connectors

Analog BNC video inputs. These three connectors can be used to connect Composite (CVBS), S-Video (Y,C), Component (Y, Pb, Pr) or RGB Analog video signals.

### 8. DVI-I Input

### 9. VGA Input

### 10. Service Port

Proprietary connection used for firmware upgrades. An optional service module is required (Marshall part number OR-SM)

## 5. Compatible Formats

Support Formats	SDI	SMPTE 425M-AB	YCBCR, 4:2:2, 10bit	1080p(60/59.94/50) 1080p(30/29.97/25/24/23.98) 1080i(60/59.94/50) 1080PsF(30/29.97/25/24/23.98)	
			YCBCR, 4:2:2, 12bit		
			YCBCR (RGB) 4:4:4, 10bit	1080p(30/29.97/25/24/23.98) 1080i(60/59.94/50) 1080PsF(30/29.97/25/24/23.98) 720p(60/59.94/50/30/29.97/25/24/23.98)	
			YCBCR (RGB) 4:4:4, 12bit	1080p(30/29.97/25/24/23.98) 1080i(60/59.94/50) 1080PsF(30/29.97/25/24/23.98) 2048x1080p24, 2048x1080PsF24	
			YCBCRA (RGBA) 4:4:4, 10bit	1080p(30/29.97/25/24/23.98) 1080i(60/59.94/50) 1080PsF(30/29.97/25/24/23.98) 720p(60/59.94/50p/30/29.97/25/24/23.98)	
			SMPTE 274M	YCBCR, 4:2:2, 10bit	1080i(60/59.94/50) 1080p(30/29.97/25/24/23.98) 1080PsF(30/29.97/25/24/23.98)
			SMPTE 296M	YCBCR, 4:2:2, 10bit	720p(60/59.94/50/30/29.97/25/24/23.98)
			SMPTE 125M		525i(NTSC, 480i60)
			ITU-R BT.601		625i(PAL, 575i50)
	ANALOG	CVBS		NTSC, PAL, 480i60, 575i50	
		COMPONENT		480i/480p/575i/576p/720p/1080i/1080p  640x480/800x600/1024x768/1280x1024 @60Hz	
	DVI	DDWG DVII.0	IT Video format (VGA(IBM VGA), SGA, XGA, SXGA (VESA))	640x480/800x600/1024x768/1280x1024 @60Hz 480p(60/59/94) 480i(60/59.94) 576p50 575i50 720p(60/59.94/30/29.97/25/24/23.98) 1080i(60/59.94/50) 1080p(60/59.94/30/29.97/25/24/23.98)	
			CE Video format		

## 6. Specifications

<b>OR-185</b>				
Panel	Type		TFT-LCD	
	Display Area		408.96 x 230.4, 18.5"(Diagnally)	
	Pixels		1920(H)x 1080(V), Full HD	
	Pixel Pitch (mm)		0.213 (H) x 0.213 (V)	
	Color Depth		16.7M (8bit), true color	
	Brightness (cd/m <sup>2</sup> )		300	
	Contrast Ratio		1000:1	
Input	ANALOG	COMPOSITE S-VIDEO COMPONENT RGB	CVBS Y/C YpbPr Sync on Green	
	SDI	SMPTE-424M	3G (2.970Gb/s)	
		SMPTE-292	HD (1.485Gb/s)	
		SMPTE-259M	SD (270Mb/s)	
	DVI		1xDVI-I	
HDMI		N/A		
Output	SDI	SMPTE-424M	3G (2.970Gb/s)	
		SMPTE-292	HD (1.485Gb/s)	
		SMPTE-259M	SD (270Mb/s)	
	HDMI		N/A	
General	Power	100~240VAC@50~60Hz Or DC 24V		
	Power Consumption	Approx. 40W(24V, 1.5A)		
	Operating Temperature (°C)	0~40		
		Humidity (%)	30%~85% (Non-Condensing)	
	Storage	Temperature (°C)	-10~60	
		Humidity (%)	0%~90%	
	Weight (Kg)	13Lb / 5.9kg		
Dimensions (WxDxH, mm)	442 x 307 x 80			
Audio	INPUT	3.5Ø stereo jack	1(Rear)	
	OUTPUT	+4dBu (1.228mVrms)	3.5Ø stereo jack 1(Rear)	
	Headphone		3.5Ø stereo jack 1(Front)	
	Speaker	Built-in (3W+3W, Stereo Speaker)		