

Marshall Electronics

 orchid OR-185

Fully Featured 18.5" Master Confidence Monitor

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Operating Instructions

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NOTES

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.

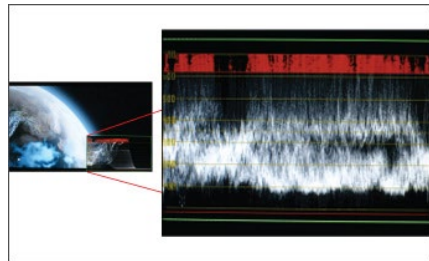
The OR-185 can de-embed and display up to 16 channels of audio using up to sixteen 64-segment Tri-color Audio Meters with user-adjustable reference levels. The Audio Level Meter also provide numerical indicators of headroom levels and a peak hold function. The Audio Channel Loss warning feature alerts 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/m² 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 warrants 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-HWPK). 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:

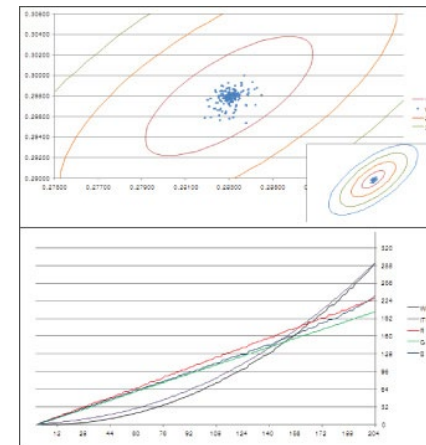
- The update process will take approximately 8 minutes.
- If the update program does not automatically detect your Orchid model you will be asked to choose the appropriate model from a drop down list then click update again.
- Clicking on details allows you to monitor the update process

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

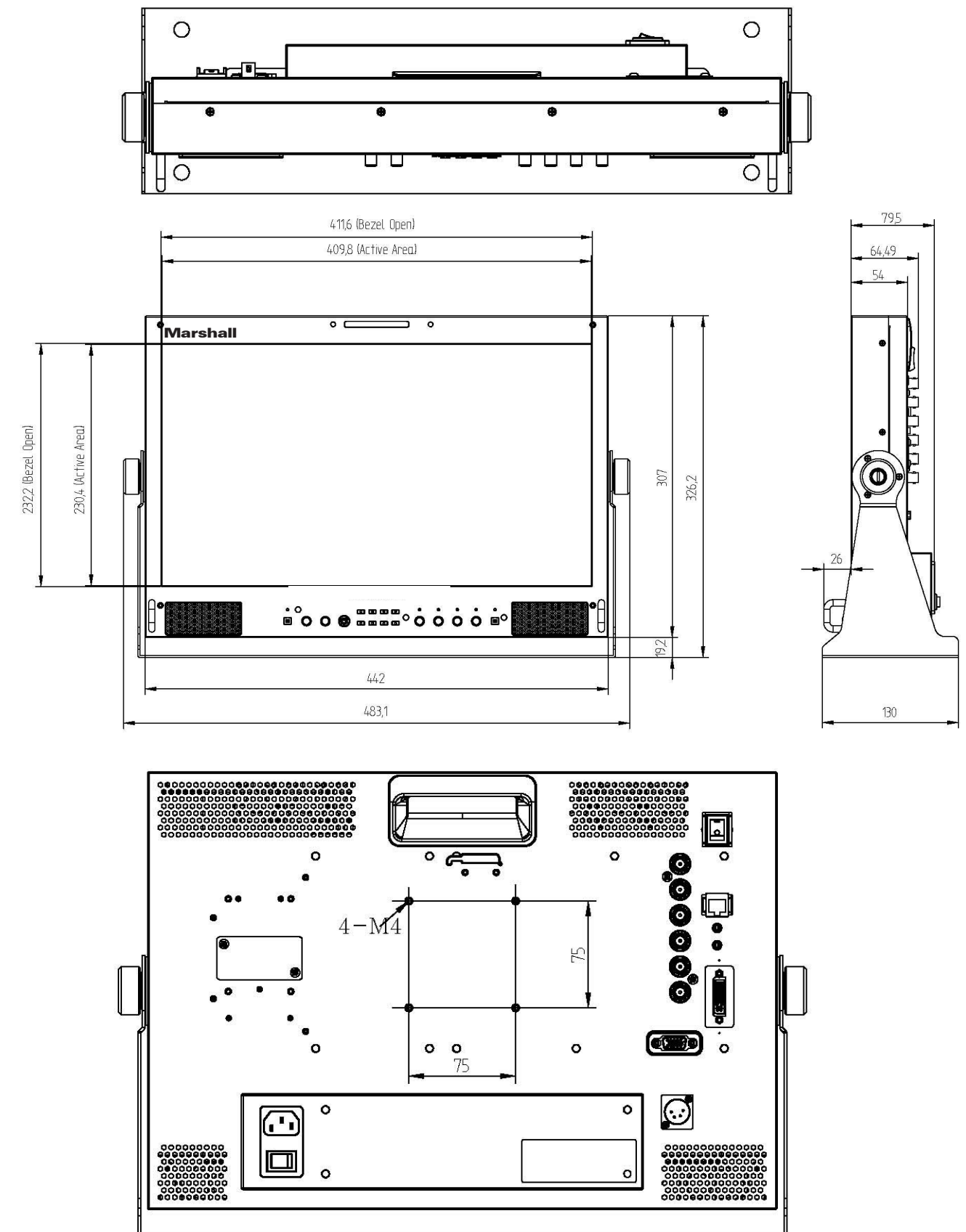
The OR-185 is designed as a tabletop production monitor. It comes complete with attached stand and tilt handle.

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.

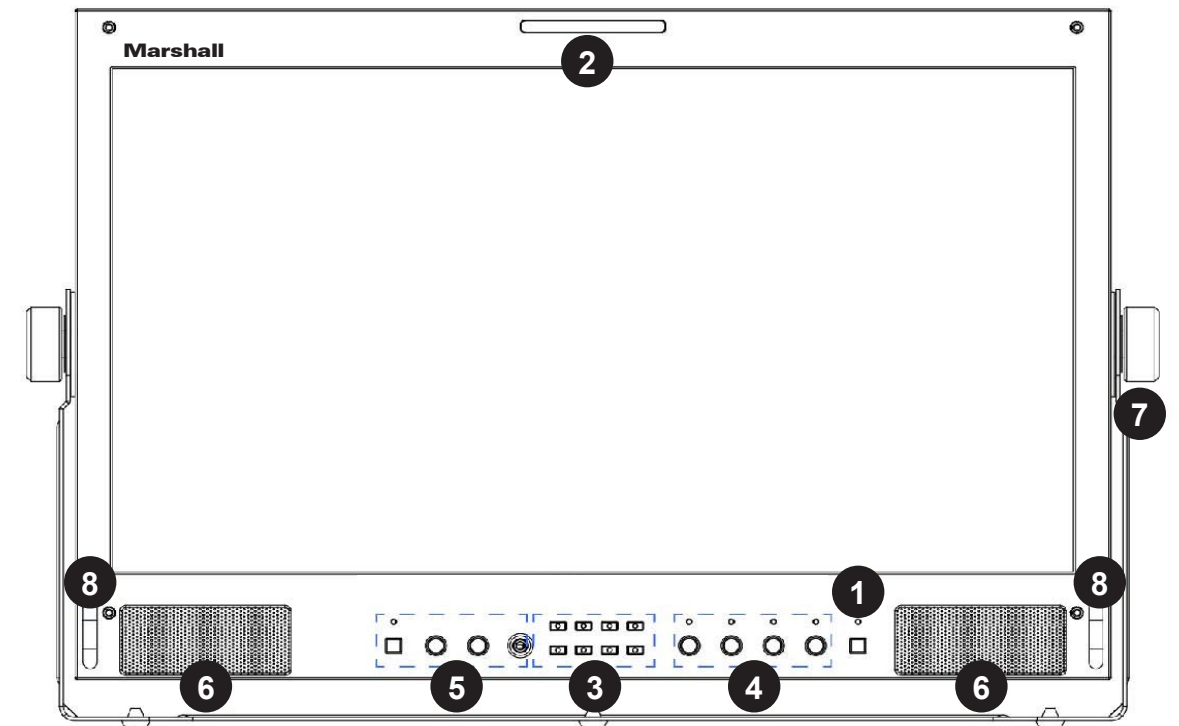
8. Dimensions (mm)



7. On-Screen Menu Contents

| | | |
|-------------|----------------------|--|
| USER ASSIGN | FUNCTION 1-7 | SDI1, 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, SDI1, 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

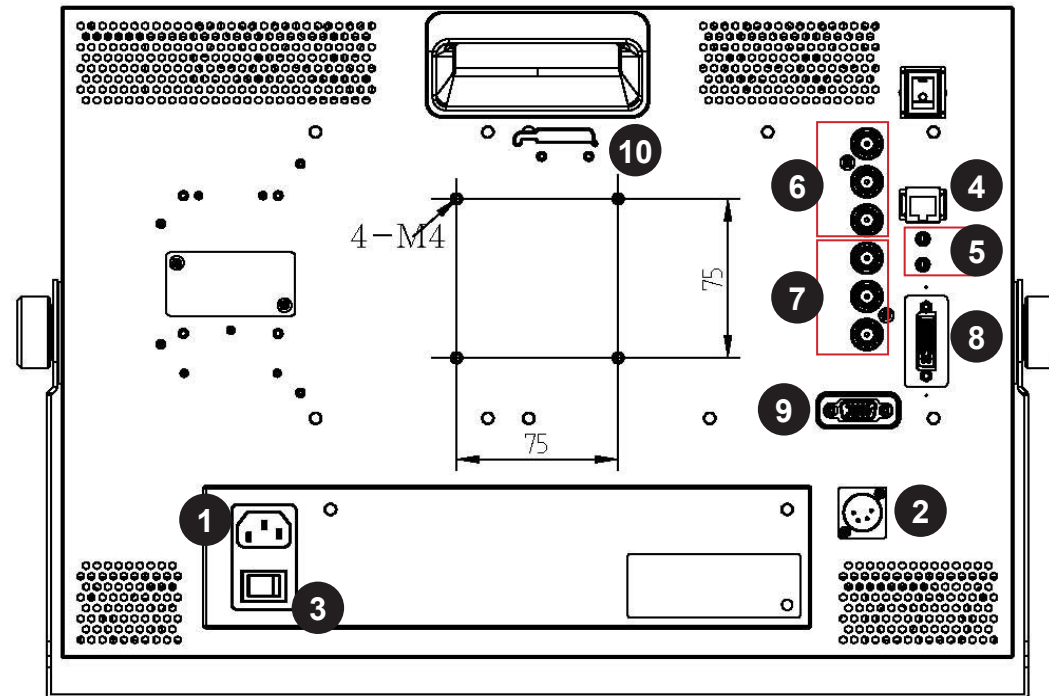
Mute / Volume / Balance / 3.5mm stereo headphone jack.

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 | MARKER | OFF, ON |
| | | CENTER | OFF, ON |
| 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 | |
| AUDIO | | FRONT VOLUME | 0~40 |
| | | HEADROOM START | -6 ~ -60dB |
| | HEADROOM END | -20 ~ -60dB | |
| | LEFT CHANNEL | 1~16 | |
| | 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 | |
| AUDIO UTIL | 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 | |
| WAVEFORM | 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 | |
| | VECTORSCOPE | LAYOUT | NORMAL, DECK, QUAD |
| 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 | |
| CLIPGUIDE | 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 | |
| | 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

| | | | |
|------------------------|---------------------------------|----------------------------------|---|
| OR-185 | | | |
| 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 ²) | | 300 |
| | Contrast Ratio | | 1000:1 |
| Input | ANALOG | COMPOSITE S-VIDEO COMPONENT RGB | CVBS Y/C YpbPr Sync on Green 3xBNC, 1xHD15 |
| | 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) | |