2011 10-07 v-0.0.6

Marshall Electronics

orchid

OR-70-3D

Fully-Featured 7" ORCHID Auto-Stereoscopic 3D Camera-Top / Field Monitor

Owners Manual

Contents

5. Maintenance

■ **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

■ **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.

REMOTE	PIN 1- PIN 8 PIN 5 GROUND	R TALLY
		G TALLY
		B TALLY
		LEFT R TALLY
		LEFT G TALLY
		LEFT B TALLY
		RIGHT R TALLY
		RIGHT G TALLY
		RIGHT B TALLY
		MARKER
		3D
		3D TPR [G+R]
		ANAGLYPH
		BLENDING
		CHECK BOX
		COMPARE BOX
		H MARKER
		LEFT EYE
		RIGHT EYE
		S-B-S (SIDE BY SIDE)
		SDI ERROR
		Y DIFF
		Y DIFF MONO
		ZEBRA
SDI STATUS	RETURN	
	ERROR COUNT	0 - 9999
	RESET COUNTER	
	DISPLAY	OFF / ON / AUTO
SETUP	RETURN	
	TIMECODE	OFF / ON
		LTC
		VITC 1
		VITC 2
	BACKLIGHT	1 TO 100%
	PICTURE DELAY	NORMAL / FAST / FASTEST
	FAN CONTROL	AUTO, MAX, OFF
	RESET TO MFG DEFAULT >	RESET NOW / CANCEL

1. Product Overview

1.1 Overview

Marshall's **OR-70-3D** is the world's first portable 7-inch 3D production monitor with innovative "glasses free" auto-stereoscopic technology. This lightweight 3D monitor does not require passive or active glasses and can be used as a camera viewfinder or portable 3D production display. With parallax barrier and lenticular hybrid technology, the OR-70-3D provides superior 3D images with 1600 x 600 screen resolution. For precision 3D calibration, the OR-70-3D provides dual waveform and vectorscope, along with various 3D analysis features such as checkbox, difference, blending, compare, and more. Integrated mux and independent loop-through eliminate the requirement of an additional external converter. Delay compensated horizontal mirror flip supports both channels respectively. Like most portable Marshall monitors, this unit also supports large battery adapters.

1.2 Features

High Resolution 7.2" Panel
The **OR-70-3D** features an all-digital TFT-MegaPixel active matrix LCD system. The LCD panel features a nominal brightness of 320 cd/m^2 and a contrast ratio of 600:1 making each display ideal in a variety of environments and lighting conditions.

Compare Box
This New Innovative feature for 3D calibration compares a specific region of both channels using easily readable bar-graphs for Y,R,G,B with numeric display. Compare Box is now must-have feature for precision 3D camera alignment.

Check Box (a.k.a checkerboard)
Checkbox provides quilted layout of both left and right channels for depth check, channel difference, and etc. The size of box can be easily adjusted by using the "Peaking" rotary encoder.

Emboss (Alpha-Channel View)
Full Frame Embossed or Luminance Difference View shows the difference between Left Eye and Right Eye.

Y Diff
Enhanced Y diff provides for better recognition of depth

H Marker
New horizontal marker provided as a ruler for 3D depth control. The position and space between lines are adjustable using the "Bright" and "Contrast" rotary encoders.

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 of 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 layouts. 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.

4.3 OR-70-3D Menu Structure

Section			Value
ANALYSIS	RETURN		
	WAVEFORM		OFF, LEFT EYE, RIGHT EYE, BOTH
	Y OVER LIMIT		-7.3 TO 109.1% [103.2%]
	Y UNDER LIMIT		-7.3% TO 109.1% [-0.9%]
	VECTORSCOPE		OFF, LEFT EYE, RIGHT EYE, BOTH
	GAIN		X1.00 to X4.91
	COMPARE BOX		OFF / ON
	HORIZONTAL MOVE		USE ROTARY
	VERTICAL MOVE		USE ROTARY
ZEBRA	RETURN		
	ZEBRA		OFF / ON
	MODE		Y
			Y ON MONO
			C
			C ON MONO
			T & C ON MONO
	DISPLAY TYPE		ZEBRA / FILL
	Y UPPER LIMIT		-7.3 TO 109.1% [103.2%]
	Y LOWER LIMIT		-7.3% TO 109.1% [-0.9%]
	C UPPER LIMIT		0 TO 255 [240]
	C LOWER LIMIT		0 TO 255 [16]
	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]
USER ASSIGN	RETURN		
	F-1 THRU F-6 REMOTE 1-3		INPUT SELECT
			3D REVIEW
			VIEW MODE
			LAYOUTS
			COLOR CHANNEL
			MARKER
			3D
			3D TPG [G + R]
			ANAGLYPH
			BLENDING
			CHECK BOX
			COMPARE BOX
			H MARKER
			LEFT EYE
			RIGHT EYE
			S-B-S (SIDE BY SIDE)
			SDI ERROR
			Y DIFF
			Y DIFF MONO
			ZEBRA
			FAN STOP
	REMOTE L+R		BLENDING
			CHECK BOX
			Y DIFF
			Y DIFF MONO
			ANAGLYPH
			3D
			S-B-S (SIDE BY SIDE)

4.3 OR-70-3D Menu Structure

INFO	INPUT	DUAL
	VIDEO FORMAT	1080i / 60
	MODEL NAME	OR-70-3D
	VERSION	1.0
INPUT	RETURN	
	SINGLE LEFT LINK	
	SINGLE RIGHT LINK	
	DUAL LINK	
	FLIP VIEW LEFT	OFF / ON
	FLIP VIEW RIGHT	OFF / ON
PICTURE	RETURN	
	CHROMA	0~100 [50] is Calibrated setting
	PEAKING	WHITE
		RED
		GREEN
		BLUE
SCREEN	RETURN	
	VIEW MODE	LEFT EYE
		RIGHT EYE
		S-B-S (SIDE BY SIDE)
		3D
3D REVIEW	RETURN	
	OFF	NORMAL, OVERSCAN, ZOOM
	BLENDING	
	Y DIFF	
	Y DIFF MONO	
	CHECK BOX SIZE	0 - 63 [10]
	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
		16:9 7 4:3
	SAFETY ZONE	80% to 100% (OFF) [95%]
	MARKER MAT	CLEAR, HALFTONE, BLACK
	LINE THICKNESS	1, 2, 3
	LINE TYPE	GRAY, HALFTONE, WHITE, INVERT
	CROSS HATCH	OFF
		SMALL
		MEDIUM
		LARGE
	H MARKER	ON / OFF
	INTERVAL	0.38% TO 8.00% [4.00%]
	OFFSET	0 TO 32 [0]

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 preset for Climits are 16 and 240 according to ITU-R BT.709. Typically, these values should not be exceeded during normal video production.

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.

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 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-Definable Function Buttons

Six user-definable function buttons and one Rotary Encoder on the front panel allow quick access to numerous
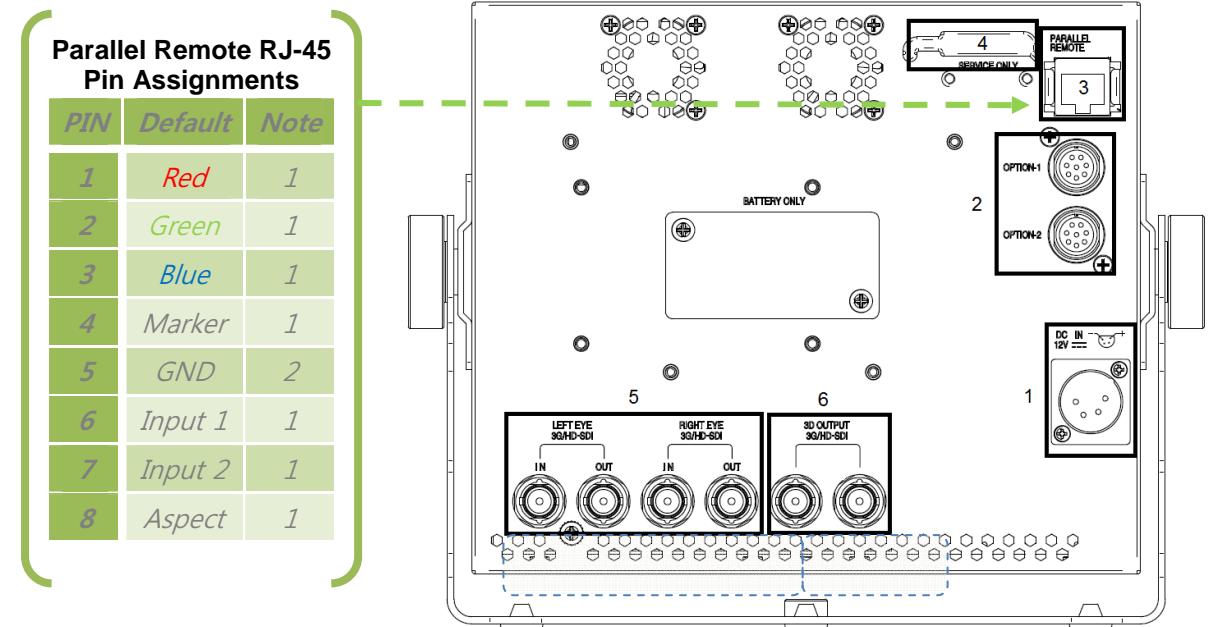
settings and features including Input 1, Input 2, Option Input, Waveform, Vectorscope, Audio Bars, aspect ratio, screen markers, monochrome mode, H/V delay mode, and more.

2. Specifications

2.1 Technical Specifications

OR-70-3D				
Panel	Type			TFT-LCD, 3D View
	Display Area(mm)			146.4x109.8, 7.2"(Diagonal Wide)
	Pixels			1600(H)x600(V), HDDP(Horizontally Double Density Pixel)
	Pixel Pitch(mm)			0.183(H)x0.183(V)
	Color Depth			16.7M, 24bit true color
	Brightness (cd/m^2)			320
	Contrast Ratio			600:1
INPUT	SDI	SMPTE-424M	3G(2.970Gb/s)	2xBNC
		SMPTE-292	HD(1.485Gb/s)	
		SMPTE-259M	SD(270Mb/s)	
OUTPUT	SDI	SMPTE-424M	3G(2.970Gb/s)	2xBNC(Left/Right Loop through) 2xBNC(Side by Side Half)
		SMPTE-292	HD(1.485Gb/s)	
		SMPTE-259M	SD(270Mb/s)	
Compatible Formats	SDI Dual Stream	SMPTE 425-A	YC_BC_R, 4:2:2, 10bit	1080p(60/59.94/50)
			YC_BC_R, 4:2:2, 12bit	1080p(30/29.97/25/24/23.98) 1080i(60/59.94/50) 1080PsF(30/29.97/25/24/23.98)
			YC_BC_R(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)
			YC_BC_R(RGB)4:4:4, 12bit	1080p(30/29.97/2524/23.98) 1080i(60/59.94/50) 1080PsF(30/29.97/25/24/23.98)
			YC_BC_RA(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(60/59.94/50/30/29.97/25/24/23.98)
		2xSMPTE 274M	YC_BC_R, 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)
		2xSMPTE 296M	YC_BC_R, 4:2:2, 10bit	720p(60/59.94/50/30/29.97/25/24/23.98)

4.2 Rear Panel Features

Parallel Remote RJ-45 Pin Assignments

| PIN	Default	Note
1	Red	1
2	Green	1
3	Blue	1
4	Marker	1
5	GND	2
6	Input 1	1
7	Input 2	1
8	Aspect	1

① **4-Pin XLR male Power Connector.**

② **Option Connectors for Tally and Remote**

③ **Parallel Remote Connector (RJ-45 User Assignable Functions)**

④ **Service Port**
(for use with optional OR-SM service module to upgrade firmware and perform color calibration

⑤ **3G/SD/HD-SDI Inputs (BNC)**

⑥ **Re-clocked 3G/SD/HD-SDI Output (BNC)**
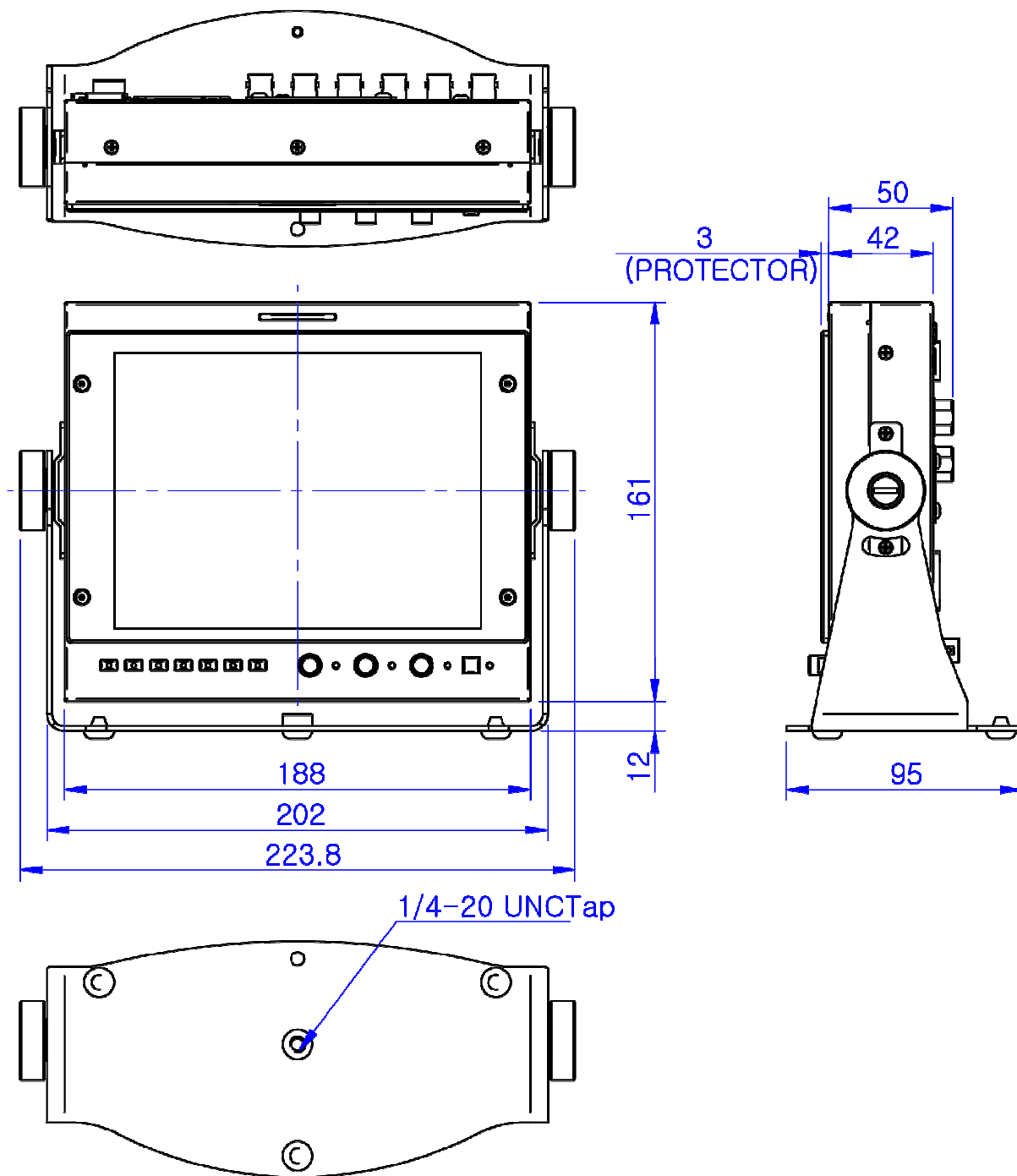
4. Operation

4.1 Front Panel Features
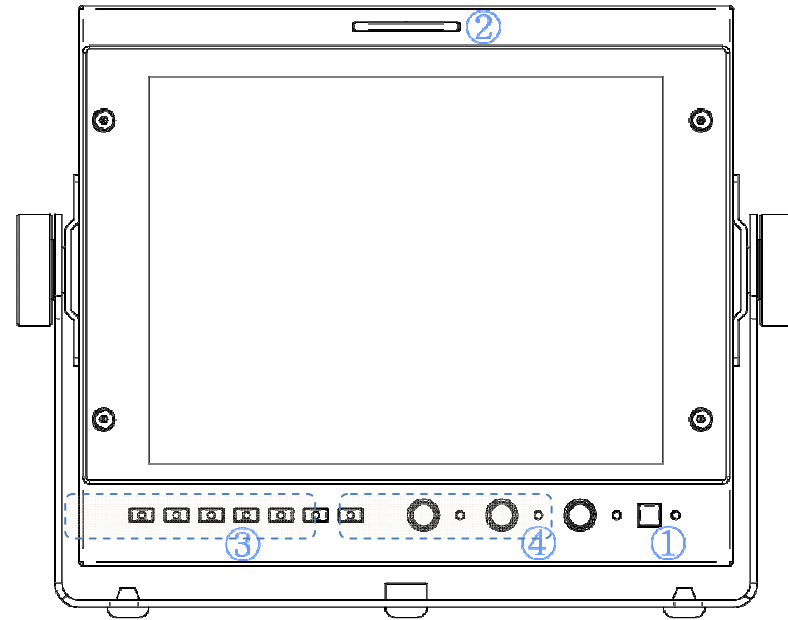
① **Power Button with Indicator**
Press power switch to turn on the Unit. The indicator LED will turn Green. Press again to put the OR-70-3D into standby mode. The LED will turn Red.

② **Tri-Color Tally Light**
30mm Tri-Color tally lamp controlled via the Remote connector on the rear of the unit.

③ **User-Definable Function Keys**
Six user-definable function buttons can be used for direct access to various settings. Functions are assigned using the on-screen menu.

④ **Rotary Encoders**
In normal operation the Rotary Encoders control Brightness / Contrast / and Peaking. Turning the encoder will allow the user to make adjustments to the indicated mode. These same rotary encoders also function as adjustment controls for the Check Box, Compare Box and H-Marker Analysis functions as well as Menu navigation.

ROTOMENU Control
Press the Menu Key to access the on-screen Menu. Turn the "Bright" 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 Menu key.

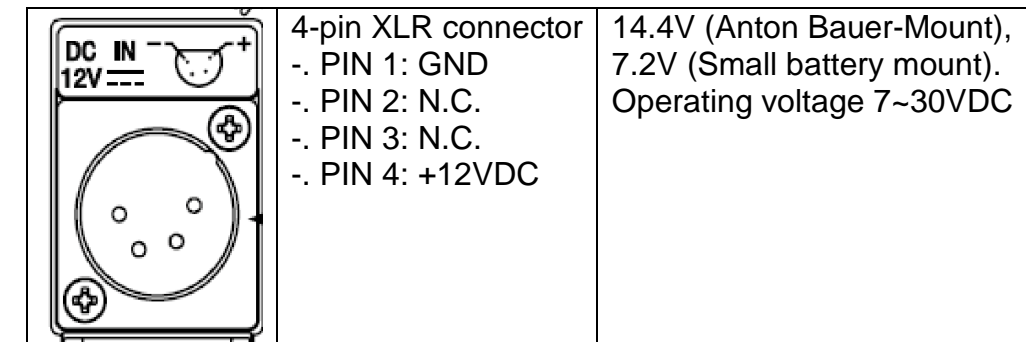|			
		YC$_B$C$_R$, 4:2:2, 10bit	1080p(60/59.94/50)
		YC$_B$C$_R$, 4:2:2, 12bit	1080p(30/29.97/25/24/23.98) 1080i(60/59.94/50) 1080PsF(30/29.97/25/24/23.98)
	SMPTE 425-AB	YC$_B$C$_R$(RGB) 4:4:4, 10bit	1080p(30/29.97/25/24/23.98) 1080i(60/59.94/50) 1080PsF(30/29.97/25/24/23.98) 720p(60/59.94/50/30/29.97/25/24/23.98)
SDI Single Stream (Side by Side Half)		YC$_B$C$_R$(RGB)4:4:4, 12bit	1080p(30/29.97/2524/23.98) 1080i(60/59.94/50) 1080PsF(30/29.97/25/24/23.98)
		YC$_B$C$_R$A(RGBA)4:4:4:4 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)
	SMPTE 274M	YC$_B$C$_R$, 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	YC$_B$C$_R$, 4:2:2, 10bit	720p(60/59.94/50/30/29.97/25/24/23.98)
General	Power Supply		6~18 VDC
	Power Consumption		24W (12V, 2A)
	REMOTE	PARALLEL	7 GPI(General Purpose Input)
		OPTION-1	Remote Control Module Interface
		OPTION-2	EXTERNAL TALLY INTERFACE
	Operation	Temperature	0℃~40℃
		Humidity	30%~85%
	Storage	Temperature	-10℃~40℃
		Humidity	0%~90%
	Weight(Kg)		1.3Kg
	Dimensions (WxDxH, mm)		*188x42x161*

2.2 Dimensions (mm)

3. Installation

3.1 Installation and Initial Setup

Carefully unpack the OR-70-3D and verify that the following items are present

• OR-70-3D with battery adapter
• 12 volt AC/DC Power adaptor

	4-pin XLR connector -. PIN 1: GND -. PIN 2: N.C. -. PIN 3: N.C. -. PIN 4: +12VDC	14.4V (Anton Bauer-Mount), 7.2V (Small battery mount). Operating voltage 7~30VDC
DC IN 12V		

3.2 Optional Accesories

OR-70TL External Tally Light for OR-70-3D	**OR-70RC** Remote Control for the OR-70-3D