

TruVue eeColor™ Processor

User Guide

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Features

Product Highlights



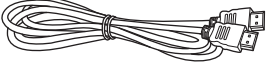
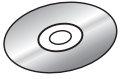
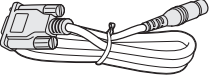
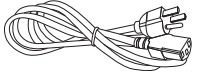
- eeColor™ processing using FPGA chip technology
- Color calibration capability built in with calibration data downloaded from the TruVue eeColor™ Application
- Built-in USB port for download purpose of color table
- Contains 6 selectable 3D eeColor™ tables that can be updated using the TruVue eeColor™ Application with support for Standard RGB and LED RGB displays
- High efficiency cooling system with low system acoustic noise level 18+/-2 dBA
- Built-in HDMI input and output terminals
- True 1920 x 1080 resolution, 10 bit display color depth
- Wireless remote control capability
- LED display panel indicates the current mode of the eeColor™ processor: the color table being used, the selected white point, and the power status of eeColor™.

Product Specifications

Video compatibility	HDTV -720p -1080i -1080p
Input signal spec.	Vsync frequency: 24/50/60Hz Max Clock: 150MHz
Color Space	Support 8/10/12 bits/color: RGB Full Range (0-255) RGB Video (16-235) YCbCr
Terminals	- HDMI input - HDMI output - 12 V DC connector - RS232 - USB (B type connector)
Calibration	- Primary color calibration to D65 or Native White - Linearity calibration for RGB
eeColor™ Tables (Std RGB and LED RGB)	- General Color with Std Skin Tones: Dark Lighting, Dim Lighting - Cinema Color with Warm Skin Tones: Dark Lighting, Dim Lighting - Vivid Color with Std Lighting: Std Skin Tones, Warm Skin Tones
Operating temperature	- 5 to 35 °C
Dimension (L x W x H)	- 151.6mm x 214.8mm x 46mm
Weight	- Approximately 1kg

Package Contents

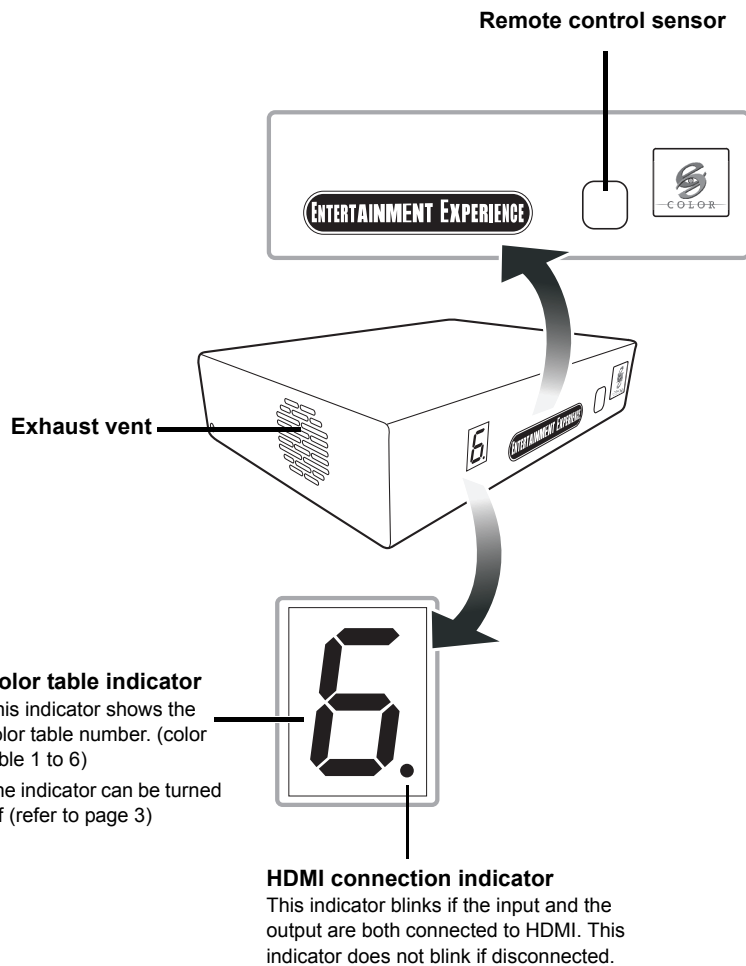
Open the package and ensure that you have the following items:

	
Remote controller for color box only	Li-ion battery
	
HDMI cable (3m)	CD
	
RS-232 cable	power cord (By country)

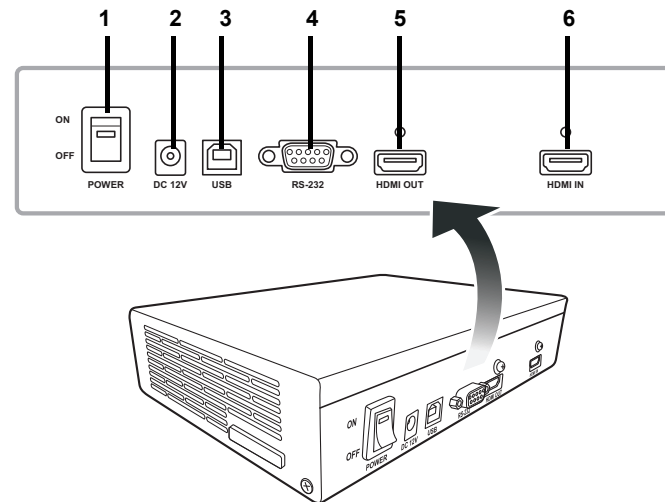
Notes:

- Some of the cables may not be available depending on the region. Please check with your nearest Authorized Dealer.
- HDMI cables must be HDMI 1.3 high speed (340Mhz) certified cables.
- If anything is missing or appears damaged, contact your dealer immediately.
- The USB cable for calibration data and 3D eeColor™ download is not included. Standard B type connector cables will work.

Color Box (Front, Top, and Side View)

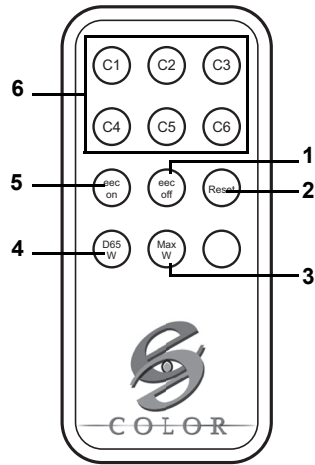


Color Box (Rear and Side View)



No.	Connector	Descriptions
1	Power (ON/OFF) switch	Press to turn the power on and off.
2	DC 12V socket	Plug in power cord with adaptor.
3	USB	B type terminal for downloading color calibration data and 3D eeColor™ tables.
4	RS232	RS-232 terminal Command control from projector
5	HDMI OUT	Terminals for connecting HDMI to display device
6	HDMI IN	Terminals for connecting HDMI from source

Remote Controller for color box only

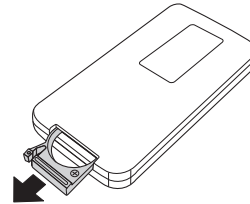


No.	Button	Descriptions
1	eeC off	Disable eeColor™.
2	Reset	Resets the settings of color box to default.
3	Max W	Sets the color box white point to native.
4	D65 W	Sets the color box white point to D65.
5	eeC on	Enable eeColor™.
6	C1 C2 C3 C4 C5 C6	Sets color box to use color table 1. Sets color box to use color table 2. Sets color box to use color table 3. Sets color box to use color table 4. Sets color box to use color table 5. Sets color box to use color table 6.

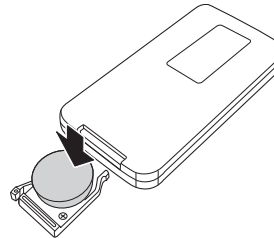
Inserting the Batteries for Color Box Remote Controller

The Li-ion batteries are included in the package.

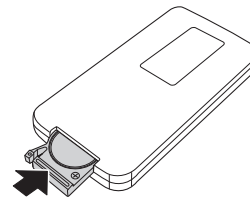
1. Pull out the battery slot from the bottom of the color box remote controller as shown.



2. Insert the li-ion battery. Ensure that the polarities correctly match the ⊕ and ⊖ marks inside the battery compartment.



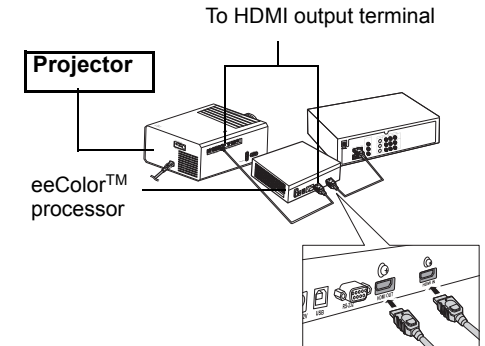
3. Push in the battery slot until it clicks in place.



Connecting the eeColor™ Processor

Use two HDMI to high-speed (340 MHz) HDMI 1.3 certified cables when connecting an HDMI video equipment to the projector with an eeColor™ processor.

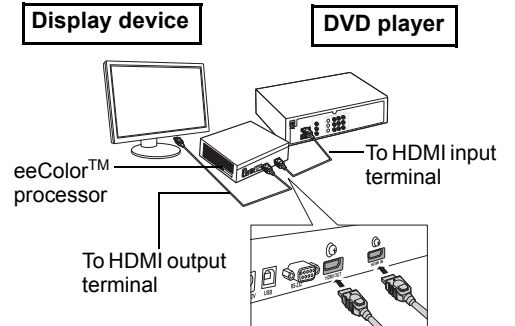
1. Connecting eeColor™ Processor to the projector with high-speed (340 MHz) HDMI 1.3 certified cable via HDMI output terminal.



2. Connecting eeColor™ Processor to the display device and DVD player or Blu-ray player with a high-speed (340 MHz) HDMI 1.3 certified cable via HDMI input terminal.

Note:

- eeColor 3D Tables support 8, 10, or 12 bits/color, YCbCr and both HDMI RGB standards; limited or video (16-235) and full-range or PC (0-255). It is important, however, to have the display and media player set to the same HDMI RGB standard because displays have specific usage definitions for values outside the video range of 16-235. Full-range or PC (0-255) is recommended if supported by both the media player and display.



Note:

- For users using DVD player or other devices without HDMI outputs, it is recommended to connect to a HDMI scaler. The HDMI scaler is able to convert majority of signals like DVI signals, PC generated RGB signals, HD Component signals, S-Video and Composite Video signals into HDMI signals.

3D eeColor™

eeColor™ is a revolutionary, patent pending, three-dimensional color processing that uses visual adaptation models for various room lighting to map input color standards to the color displays. Color media distribution standards contain no information about viewing environments and as such cannot compensate for losses in perceived color, contrast and brightness to the viewer. eeColor™ introduces the appropriate compensation and produces stunning color improvements. In addition, the full three-dimensional color processing of eeColor™ allows it to preserve artistic intent and memory colors, such as skin tones, while achieving the appropriate viewing environment compensation.






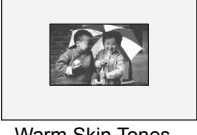


Selecting eeColor™ Tables

The TruVue eeColor™ Processor contains six 3D eeColor™ tables. They include selections for different room lighting and color intent as illustrated in table to the right. When using the remote to select the table, an identifying window will be presented on the bottom right hand corner of the display to illustrate the eeColor™ table that has been selected.

Since RGB LED displays and Standard RGB displays have significantly different color gamuts, the TruVue eeColor™ Application provides six 3D eeColor™ tables for both types of display. Entertainment Experience will introduce additional eeColor™ tables in the future for various media genre and display types that can be easily downloaded into the TruVue eeColor™ Processor.

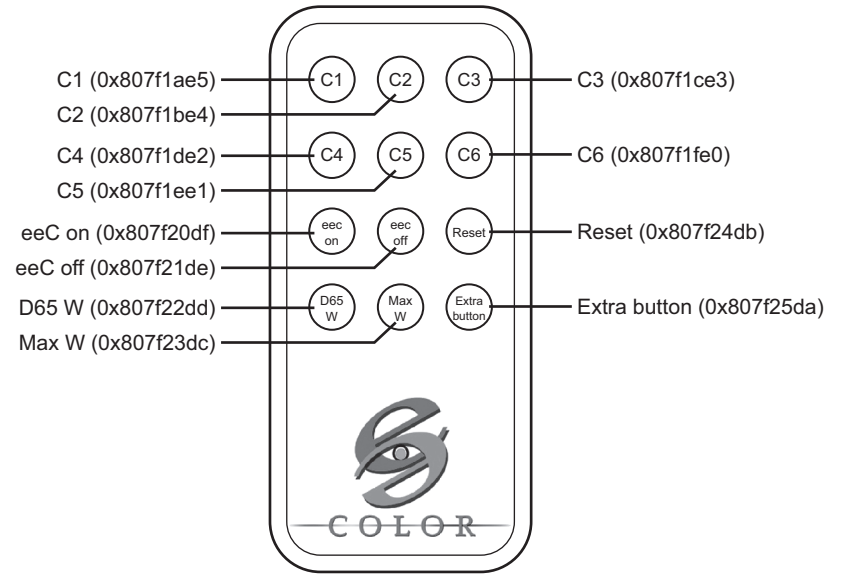
eeColor™ Choices

C1: General Color with Standard Skin Tones and Dark Lighting	
 Standard Skin Tones	This table is based on preserving skin tones and compensating for dark room lighting. This is recommended for general media and television.
C2: General Color with Standard Skin Tones and Dim Lighting	
 Standard Skin Tones	This table is based on preserving skin tones and compensating for dim room lighting. This is recommended for general media and television.
C3: Cinema Color with Warm Skin Tones and Dark Lighting	
 Warm Skin Tones	This table is based on adding warmth to skin tones and compensating for dark room lighting. This is recommended for movies and user preferences for warm color tones.
C4: Cinema Color with Warm Skin Tones and Dim Lighting	
 Warm Skin Tones	This table is based on adding warmth to skin tones and compensating for dim room lighting. This is recommended for movies and user preferences for warm color tones.
C5: Vivid Color with Standard Skin Tones and Standard Lighting	
 Standard Skin Tones	This table is based on preserving skin tones and compensating for standard room lighting. This is recommended for general media and television, and users who prefer vivid color tones.
C6: Vivid Color with Warm Skin Tones and Standard Lighting	
 Warm Skin Tones	This table is based on adding warmth to skin tones and compensating for standard room lighting. This is recommended for movies and users who prefer the most vivid color tones.

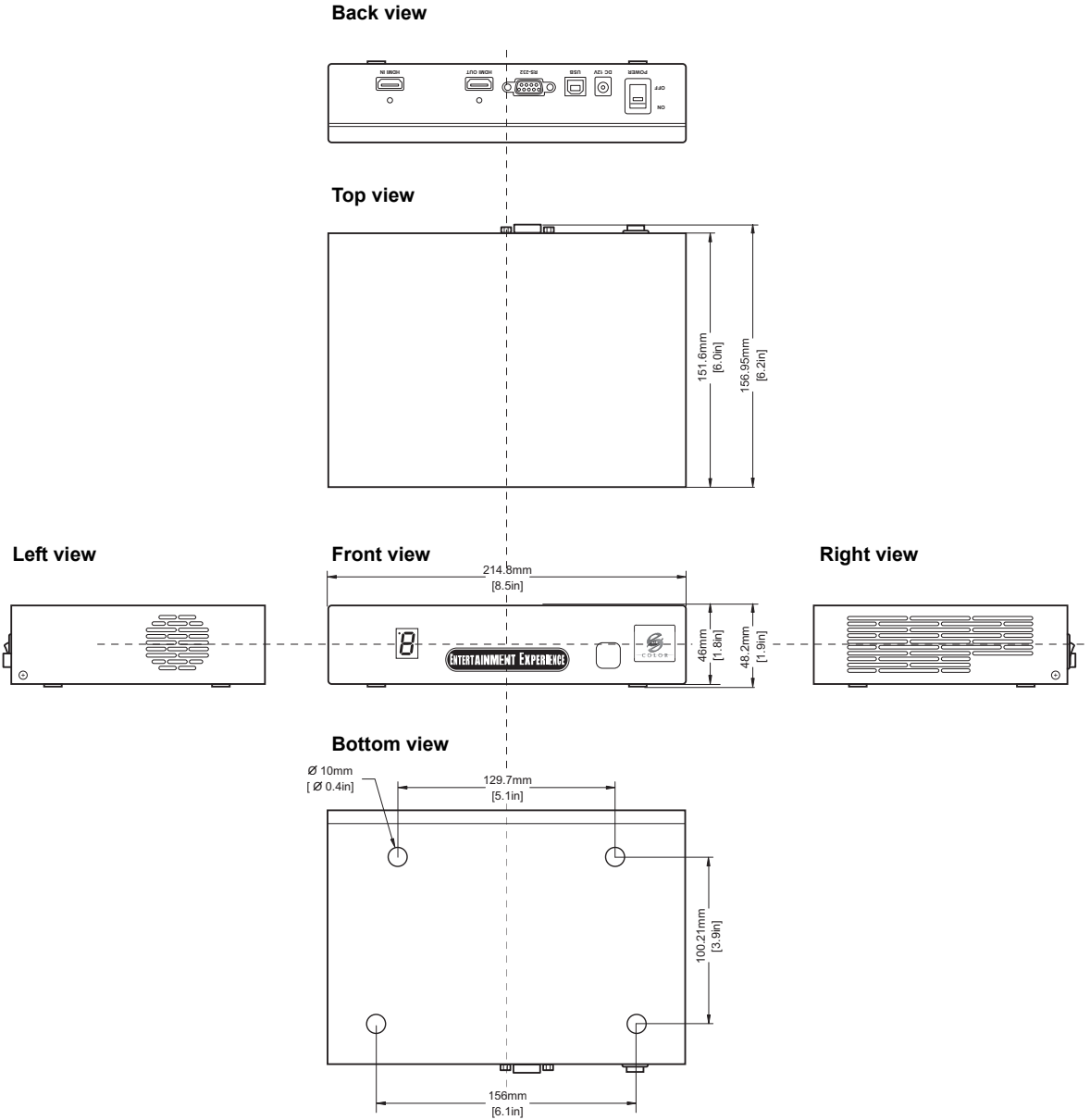
eeColor™ IR-232 Control

White Point	Matrix	232-Command
D65	1	0xa7
Native	2	0xa8

eeColor™		3D Table	232-Command
General Color	Standard Skin Tones Dark Lighting	1	0xa1
	Standard Skin Tones Dim Lighting	2	0xa2
Cinema Color	Warm Skin Tones Dark Lighting	3	0xa3
	Warm Skin Tones Dim Lighting	4	0xa4
Vivid Color	Standard Skin Tones Standard Lighting	5	0xa5
	Warm Skin Tones Standard Lighting	6	0xa6
Bypass			0xa0



eeColor™ Processor Dimensions



The TruVue eeColor™ Application supports the independent download of 3D eeColor™ tables, display primary calibration matrices and display linearity calibration tables to the TruVue eeColor™ Processor. A brief description is included here for reference. For more detail, users are referred to the TruVue eeColor™ Application User Guide available on the www.eecolor.com web site.

3D eeColor™ tables can be downloaded for different display types and color intents, as shown in the download screen below. The current display types are; 1) the TruVue Vango LED Projector, 2) RGB LED Displays and 3) Standard non-RGB LED Displays. These displays have significantly different color gamut's, and therefore require different 3D eeColor™ tables. Most projectors and televisions, including the now common white LED televisions, would use the Standard non-RGB LED Display tables. 3D eeColor™ tables are supplied in sets of six (6) tables depending on color intent.

The TruVue Vango LED Projector has two (2) color intents; "Max Color" and "Max Brightness", with three (3) room light settings for each; dark, dim and standard. Max Color and Max Brightness tables are both designed for movie viewing with added warmth to skin tones. Max Color uses the Vango RGB mode and Max Brightness uses the Vango RGBCY mode for higher brightness and larger screens. The other two display types have three (3) color intents; "General Color", "Cinema Color" and "Vivid Color". General Color maintains standard skin tones and has two (2) room light settings; dark and dim. It is recommended for general media. Cinema Color adds warmth to skin tones and has two (2) room light settings; dark and dim. It is recommended for movie viewing and users that prefer warm tones. Vivid Color has standard and warm skin tone settings and one (1) room light setting; standard. It is recommended for viewing with room lights on and for users who prefer a more colorful viewing experience. Entertainment Experience will provide tables for additional displays and color intents in the future

The "Display Primary Calibration" panel in the download screen allows the user to download white point calibration matrices from measured display data entered into the TruVue eeColor™ Application to choose a CCIR 709 D65 white point or a display Native white point using the TruVue eeColor™ Processor remote control. For RGB LED and

Standard non-RGB LED displays the default calibration matrices produce a native white point.

The "Display Linearity Calibration" panel in the download screen allows the user to download gamma calibration tables from measured display data entered into the TruVue eeColor™ Application to linearize the display. Once downloaded these tables are always active unless the TruVue eeColor™ Processor is put into the bypass mode. The default linearity tables are the CCIR 709 encoding functions for a standard CCIR 709 display.

The user can download any combination of 3D eeColor™ tables, display primary calibration matrices or display linearity calibration tables to the TruVue eeColor™ Processor using a tethered USB cable from the TruVue eeColor™ Application computer and Processor. The download data will be updated and verified. Status messages will be displayed during 2-6 minute download. The download can be canceled at anytime by selecting "Cancel". If the download is canceled prior to completion, the TruVue eeColor™ Processor will be unusable until a successful download is completed. The "Status" panel will indicate a successful download, and a completion tone will sound.

Note: The TruVue eeColor™ Application and Processor support 8, 10, or 12 bits/color and RGB or YCbCr HDMI color format standards. RGB support includes Video or Partial Range RGB (16-235) and the PC or Full Range RGB (0-255). For RGB input, it is recommended that the media player and display be set to the same HDMI RGB standard to ensure consistency.

