SpectraCal

# CalMAN
# Setup Guide

JVC Projectors

Rev. 1.1

PORTRAIT
DISPLAYS

# Introduction

CalMAN is able to control many older JVC projectors to automatically calibrate the projector's grayscale, gamma, and CMS. The automatically controlled JVC projector models are:

- DLA-RS40/RS50/RS60; DLA-X3/X7/X9

- DLA-RS45/RS55/RS65; DLA-X30/X70/X90; (also XC388/XC788/XC788, RS480)

- DLA-RS840

- DLA-RS46/RS56/RS66; (also X35/X55/X75/X95, RS48/RS4810, XC3800/XC5800/XC7800/XC9800)

The calibration characteristics of these projectors are a bit different than many other video displays, so caution needs to be taken to use the proper procedure to accomplish the superb calibration that CalMAN is able to achieve with the JVC projectors. This setup guide assists you in accurately calibrating one of the above JVC projectors with any of the CalMAN advanced workflows that provide both Grayscale/Gamma AutoCal and CMS AutoCal calibration.

## CalMAN Recommended Workflows

- HT Advanced Calibration
- SI Advanced Calibration
- ISF Calibration

## JVC Projector Required Firmware

- All JVC firmware is acceptable.

## JVC Projector Control Connection

1. Connect CalMAN to the JVC projector with a female to female null-modem serial cable (reverses connections between pins 2 and 3 from one end to the other).

2. Set the projector's *Function/Communication* selection to '*RS-232C*.'

## JVC Internal Test Pattern Generator

JVC projectors provide internal calibration test patterns. CalMAN can automatically control the JVC internal test patterns when you connect CalMAN, on its *Source Settings* tab, to the 'JVC – RS/X Internal Patterns.'

*Note: If you wish to use the JVC internal generator, CalMAN needs to be connected to the projector with an RS-232 serial connection.*

*Also, if you use the projector's internal test patterns, you must still have an active video signal connected to the projector and selected. Otherwise, the projector's internal adjustment processing will not function during the CalMAN AutoCal process.*

If you use a Quantum Data 780 test pattern generator, set the generator's 'Hot Plug Formats' selection to '*Off*'

## JVC Projector Menu Controls

When CalMAN is connected to a JVC projector on the CalMAN *Display Control* tab, all the JVC Picture controls can be selected and adjusted from within the CalMAN software.

### Picture Mode/Color Profile

On the CalMAN *Display Control* tab, under *Display Mode Settings*, select the desired combination of Picture Mode and Color Profile settings for the projector. One of the User/Custom combinations or an ISF mode works well. Note that THX mode does not provide gamma or CMS calibrations.

*Exception: For RS46/RS56/RS66 models, the "Natural" Picture Mode and the "Video" Color Profile are the best choices.*

The remaining projector controls are accessed in the CalMAN DDC Window. On the *Display Control* tab, click the *Open DDC Window* button. On the DDC Window, scroll left or right to the *Display Controls* page to access the projector controls.

### Input Signal/HDMI

When calibrating projector inputs that normally receive standard range YCbCr video input signals (set top boxes and broadcast), set the projector's HDMI Input control to '*Standard*' (bit levels 16-235).

When calibrating projector inputs that normally receive extended range YCbCr video input signals (optical players and other HD sources), set the projector's HDMI Input control to '*Super White*' (bit levels 16-255).

When calibrating projector inputs that normally receive full range RGB input signals (computer output), set the projector's HDMI Input control to '*Enhanced*' (bit levels 0-255).

## Color Temp

Set the projector's 'Color Temp' selection to one of the Preset settings, not to one of the Custom Color Temp settings (unless calibrating a 3D mode).

*Exception: For RS46/RS56/RS66 models, the "Custom 1" Color Temp is the best choice.*

Unless you are calibrating a JVC projector for 3D viewing, do not calibrate the Custom Color Temp 2-point Gain and Offset controls.

When you are calibrating a JVC projector for 3D viewing, you need to calibrate the Custom Color Temp 2-point Gain and Offset controls, as the multipoint controls are not available in a 3D mode.

## Advanced/Custom Gamma

When using ISF or THX modes, set the projector's 'Custom Gamma' selection to a '*Custom'* setting to enable the multipoint gamma/grayscale controls.

*Note: For RS46/RS56/RS66 models, the "Custom 1" Gamma is the best choice.*

## Contrast and Brightness

When CalMAN performs AutoCal adjustments on JVC projectors, it automatically presets the projector's Contrast and Brightness controls each to '0,' to properly align the projector's control points with CalMAN's calibration points.

*CAUTION: After AutoCal is complete, **DO NOT ADJUST the projector's Contrast and Brightness controls**, as adjusting the controls away from the 0 presets corrupts any calibration adjustments.  Also, **do not attempt to 'touch up' the projector's grayscale or CMS calibration adjustments**, as that will also corrupt the entire set of calibration adjustments.*

**Contrast** – There is no need to manually adjust the projector's Contrast control, because, at the 0 preset setting, the JVC projectors do not clip high luminance level signals.

**Brightness** – CalMAN provides a new "Brightness Value" control in the DDC Control Window that adjusts the luminance levels of the darkest parts of images, without affecting other calibration adjustments.  Adjusting JVC projector black levels with this new Brightness Value DDC control in CalMAN (after the gamma and CMS AutoCal calibrations) allows you to avoid adjusting the projector's Brightness control, which corrupts any calibration adjustments.

## JVC Projector Display Calibration with CalMAN AutoCal

The interaction between a JVC projector's grayscale/gamma controls and its CMS controls is much more pronounced than in most other displays.

Due to this pronounced control interaction, you need to perform CalMAN calibration on a JVC projector in the following order, repeating the Grayscale/Gamma AutoCal:

1. Grayscale/Gamma AutoCal

2. CMS AutoCal

3. Grayscale/Gamma AutoCal

_Note_: The CMS1, CMS2, and CMS3 Color Management modes are global across all signal inputs and picture modes.

### Brightness Value

After the above AutoCal steps are complete, use the new CalMAN "Brightness Value" control to adjust the luminance levels of the darkest parts of images for individual preference in different viewing environments. This new 'Brightness Value' control is located on the _Display Controls_ page in the CalMAN _DDC Controls_ dialog (click the _Open DDC Window_ button on the CalMAN _Display Control_ tab).

The Brightness Value control is very easy to adjust while viewing a multi-step Brightness test pattern with steps at bit levels 16, 17, 18, 19, 20, etc. Or, adjust the control for proper black level while viewing familiar video images with significant dark shadow content.

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## About Portrait Displays

Portrait Displays, Inc., since 1993, is a leading application software provider (ASP) for PC, smartphone, and tablet displays. The Portrait Displays team now includes **SpectraCal**, the world's leading provider of video display calibration software.  The combined companies offer value-added, feature-rich solutions to both OEM display manufacturers and end users seeking improved accuracy and manageability of their displays.

Portrait Displays, an Intel Capital Portfolio company, is a private corporation with headquarters in Pleasanton, California, USA with representatives in Europe, Taiwan, China, Japan, and Korea.

## Contact Us

SpectraCal

Submit a Technical Support Request:

http://calman.spectracal.com/techsupport.html

spectracal.com

sales@spectracal.com

+1-925-227-2700

**PORTRAIT DISPLAYS**

Portrait Displays, Inc.

6663 Owens Drive

Pleasanton, CA 94588 USA

portrait.com