CalMAN®
WITH AUTOCAL

SONY
BRAVIA

2018
Quick Reference Guide

Introduction

This guide designed as a reference to the Sony BRAVIA Workflow, used to calibrate Sony's upper-end Android TVs including Z9D and subsequent LCD and OLED models. This workflow will walk you though the process step-by-step, pre-configures most needed CalMAN Settings, and should be the primary resource during calibration.

The workflow options are pre-configured so once connected over DDC, you will simply have to click "AutoCal" button on each of the following pages (Luminance, Grayscale, and Colorspace) to calibrate.

HDR CALIBRATION NOTE: Sony displays automatically scale SDR picture mode(s) into the HDR picture mode(s). Calibrations applied in SDR mode automatically apply to HDR. Direct calibration of HDR picture modes is not necessary.

CalMAN Required Version

- CalMAN 2018 v5.9.2 or newer

CalMAN Required Workflows

- Sony BRAVIA Workflow

Required Hardware

- CalMAN Compatible Pattern Generator
- CalMAN Compatible Color Meter or Spectroradiometer

Required Software

- CalMAN for Bravia app (See Next Page)

Hardware Connection

1. **Connect your meter.**

    1. Connect your meter to you computer via USB.

    2. Click the Find Meter button to connect your meter to CalMAN.

    3. Select the Target Display Type.

        • For SpectraCal C6 meters

            • For OLED choose "OLED (White) LG, Panasonic, Sony, FSI 2018"

   • For LCD choose "PFS Phosphor"

2. **Connect your CalMAN compatible Pattern Generator.**

    1. Connect your pattern source to the TVs HDMI port.

    2. Click the Find Source button to connect your source to CalMAN.

    3. Select the pattern Window Size

        • OLED - Window 10%

        • LCD - Constant APL 10

CalMAN for BRAVIA App Configuration

1. **Install the app**

    1. Make sure your TV connected to the Internet, then open "Google Play Store" on your TV.

    2. Search for and install an app called "CalMAN for BRAVIA".
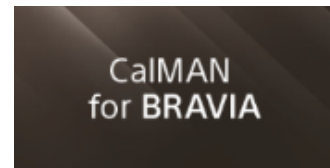
2. **Connect**

    1. Launch "CalMAN for BRAVIA" on your TV. When successfully launched, your BRAVIA will be ready to connect to CalMAN and its IP address will be shown on the upper right corner.

    2. In the app select the HDMI input # your pattern generator is connected to.

    3. Click the Find BRAVIA TV device button. (On Hardware Connect Page)

    4. Then enter your TV's IP Address into the connection dialog box. You can find the IP address in the upper right corner of the CalMAN for BRAVIA app.

3. **Select Options**

    1. The calibration options are pre-configured at 2.2 Gamma, D65 (it will either say Expert 1 or Expert 2 on your TV), and BT.709.

    2. Your BRAVIA being calibrated correctly at SDR at these settings is imperative to how it performs under HDR.

CalMAN Settings

CalMAN Settings > Application Measurement Options

Full Field Pattern Insertion (OLED ONLY)

To prevent an OLED display from entering its auto dimming mode during extended measurements, the CalMAN Pattern Insertion feature periodically inserts a different test pattern during extended test pattern measurements, to reset the display's auto dimming timer.

Under CalMAN Settings > Application Measurement Options, set the following Full Field Pattern Insertion options:

- Frequency: 30 (seconds)
- Duration: 5 (seconds)
- Level: 15%

Calibration Options Page > Calibration Targets

- **White Point**
  - The workflow defaults to standard D65 and Power 2.2 gamma. Power 2.2 gamma is required for this calibration process.
  - For restoring MASTER Series' factory calibration enter White Point x: 0.3067, y: 0.318
- **AutoCal dE Formula**
  - We recommend setting the AutoCal dE Formula to "dE2000 JNDab" for best results.

SDR Calibration

1. **Complete Introduction, Instruction, Hardware Connect, and Options Workflow Steps**

   1. These steps include critical information regarding the setup of calibration, which has also been documented above.

   2. Ensure all hardware is connected to CalMAN (See Hardware Connect Section on Page 3)

2. **Select Picture Mode**

   1. Using the picture mode dropdown menu on the "Select Memory Slot" page, or in the Display Control dropdown, select which picture mode you would like to calibrate.

      1. Options are "Custom for Pro 1" or "Custom for Pro 2." Luminance and CMS data will be saved onto the specified Picture Mode.

   2. Also by using the color temperature dropdown menu, select where you would like to save grayscale calibration to. Options are "Expert 1" and "Expert 2".

   3. After selecting your picture mode, click the "Full DDC Reset" button. This resets and prepares the picture mode for calibration.

3. **Run AutoCal**

   1. **Luminance Page**

      - Click AutoCal Button ⟳ in lower-right of CalMAN and choose Luminance target

      - Or for Manual Adjustment, Click Read Continuous and adjust BRAVIA's "brightness" control (brightness controls backlight luminance for LCD and pixel brightness for OLED, respectively)

   2. **Greyscale Page**

      1. Click AutoCal Button ⟳ in lower-right of CalMAN

      2. In AutoCal Dialog, the greyscale points are automatically selected, click OK to start AutoCal

   3. **Colorspace Page**

      1. Click AutoCal Button ⟳ in lower-right of CalMAN

      2. In AutoCal Dialog, the CMS values are automatically selected, click OK to start AutoCal

      - Note: If CMS on picture modes other than Custom for Pro 1/2 has to be adjusted, see the CMS calibration result on DDC Window (HSL values), and adjust exactly the same on the modes of your choice.

   4. **Calibration Complete, move to Post-Calibration steps**

Post-Calibration

1. **GreyScale & ColorChecker® Post-Calibration Page**

    1. Click the Read Series **[…]** button to validate the calibrated display performance using a combination of grayscale and X-Rite/Pantone ColorChecker® patterns. Measures the same patterns read in the Display's Pre-Calibration Test.

2. **(OPTIONAL) Alternative Gamma Verification**

    - This workflow is setup to calibrate to 2.2 gamma. If you would like to validate an alternate gamma value, enter it in the gamma field on the Verification Options page. Then use the "Display Controls" to the right to change the TV's gamma formula to match the value you entered in the field above.

    - Note: Once an alternate gamma is selected use the post-calibration to verify the results. Previous workflow validation pages will compare to the adjusted gamma value.

HDR Calibration

Sony displays automatically scale SDR picture mode(s) into the HDR picture mode(s). Calibrations applied in SDR mode automatically apply to HDR. Direct calibration of HDR picture modes is not necessary.

- The calibration of SDR (2.2 Gamma, D65, Rec 709) is automatically applied to HDR and other gamma formulas.

- You can validate it by changing CalMAN and your Pattern Generator to HDR settings (2.2 Gamma, D65, BT.2020, and retaking all the measurements by Read Series.

    - HDR Compatible Pattern Generator required for validation

        - VideoForge PRO

        - Murideo Six-G

- You can do so in the Validation section of this workflow, but for checking HDR, we highly recommend you to use HDR Analysis workflow instead.

About/Contact

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.

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