

CaIMAN Setup Guide



VideoForge PRO

By SpectraCal

Rev. 1.7

Introduction

The SpectraCal VideoForge PRO test pattern generator can be automatically controlled by the CalMAN Display Calibration Software to produce measurement and calibration test patterns via HDMI for SDR and HDR displays at resolutions from 640x480 up to 3840x2160.

CalMAN Required Version

- Version 5.8.31 or later

CalMAN Recommended Workflows

- All available measurement and calibration workflows

VideoForge PRO Supported Firmware

- Version 1.01 or later

VideoForge PRO Control Port

- Mini USB

VideoForge PRO Connection to Computer

The VideoForge PRO uses the FTDI USB device driver.

1. Install the FTDI driver before you connect the VideoForge PRO to your computer.
 - The FTDI driver is available:
 - As part of the CalMAN Device Driver Pack (<http://www.spectracal.com/download.php?id=3>), or
 - From the FTDI web site (<http://www.ftdichip.com/FTDrivers.htm>).
 - When the driver is properly installed, the Murideo will be listed in Device Manager under Ports (COM & LPT) as "USB Serial Port"

(COMx)." If it is not listed that way, the driver is not yet properly installed.

2. Connect the VideoForge PRO to the CalMAN computer with a USB cable.

CalMAN Connection to VideoForge PRO

1. When the VideoForge PRO is properly connected to the computer, launch CalMAN. CalMAN will automatically connect to the VideoForge PRO.
2. If the VideoForge PRO is plugged into the CalMAN computer after CalMAN is open, it can be connected by clicking the *Find Source* button on the CalMAN *Source Settings* tab.
 - a. On the CalMAN workflow *Hardware Connect* page, or on the CalMAN *Source Settings* tab, click "Find Source,"
 - b. On the *Find Source* dialog (Figure 1), select "SpectraCal - VideoForge PRO."
 - c. Select the *Com Port* that you saw listed in Windows Device Manager, "USB Serial Port (COMx)."
 - d. Click *Connect* on the *Find Source* dialog.

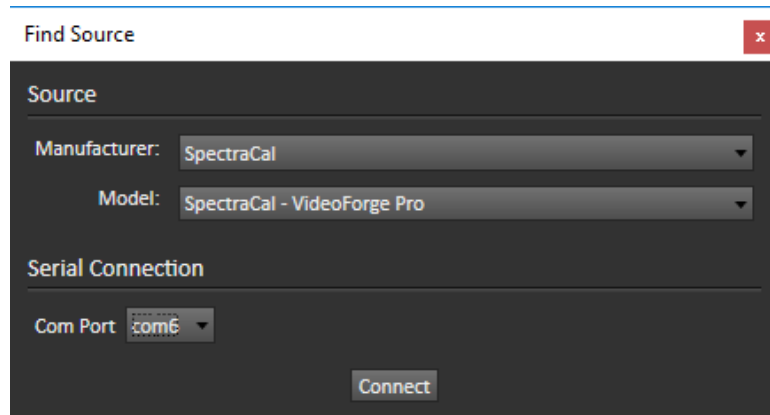


Figure 1. CalMAN Find Source dialog, for connecting to the VideoForge PRO as the CalMAN test pattern source.

CalMAN Source Settings Options

When the VideoForge PRO is connected as a CalMAN test pattern source, the following *Settings* options on the CalMAN *Source Settings* tab (Figure 2), should be set according to the type of display being measured or calibrated.

Refer to specific display model information to guide these settings on the *Source Settings* tab.

- *Window Size*
- *Delay* (Optimize for specific display characteristics)
- *Pattern Size*
- *Pattern APL*
- *Resolution* (match display's normal drive signal)

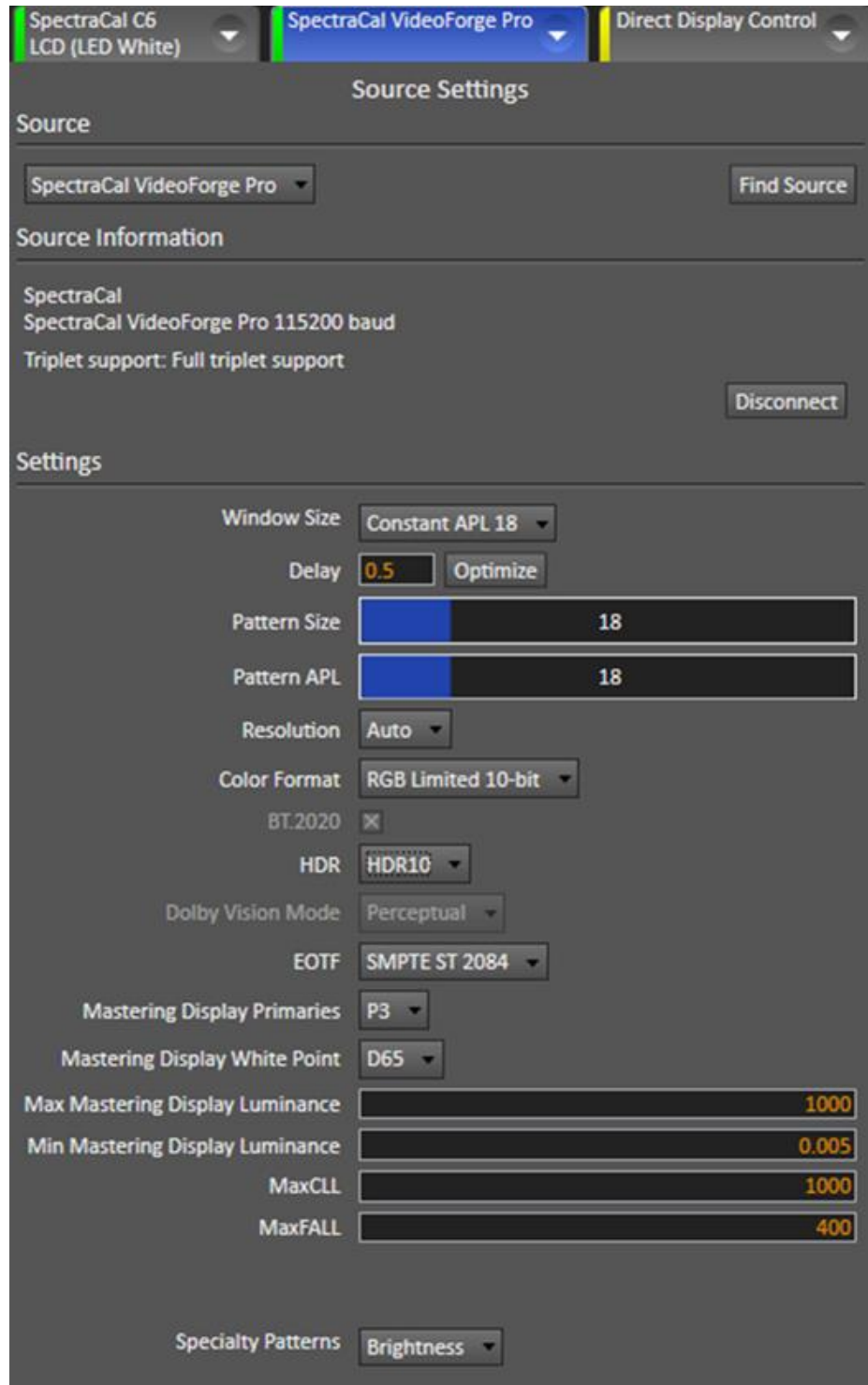


Figure 2. CalMAN Source Settings tab, for selecting test pattern options.

Those options on the *Source Settings* tab that are listed below the *Resolution* option should be set to configure the VideoForge PRO properly for the type of content for which the display is being calibrated.

The *Source Settings* options are detailed below for each of the following types of content:

- [VESA sRGB](#) SDR content (RGB computer monitors)
- [HDTV](#) SDR content
- [HDR10](#) HDR content
- [HLG](#) HDR content
- [Dolby Vision](#) HDR content

Note: After changes are made on the Source Settings tab, the VideoForge PRO output mode does not change until CalMAN selects the first test pattern to be displayed.

VESA sRGB SDR Content Calibration (RGB computer monitors)

VideoForge PRO *Source Settings* options for VESA sRGB SDR content (Figure 2):

- *Color Format:* RGB Full 8-bit
- *BT.2020:* Disabled
- *HDR:* Off

HDTV SDR Content Calibration (video monitors & consumer TVs)

VideoForge PRO *Source Settings* options for HDTV SDR content (Figure 2):

- *Color Format:* YCbCr 4:2:2 10-bit
- *BT.2020:* Disabled
- *HDR:* Off

Note: When enabling BT.2020 color space for SDR, the Color Format should be set to "RGB Limited," as the VideoForge PRO does not support correct BT.2020 triplets for YCbCr output.

HDR10 HDR Content Calibration

VideoForge PRO *Source Settings* options for HDR10 HDR content (Figure 2):

Note: When enabling HDR10, the Color Format should be set to “RGB Limited,” as the VideoForge PRO does not support correct triplets for YCbCr output.

- *Color Format:* RGB Limited 10-bit
- *HDR:* HDR10
- *EOTF:* SMPTE ST 2084
- *Mastering Display Primaries:* P3
- *Mastering Display White Point:* D65
- *Mastering Display Max Luminance:* 1000 (540 for OLED)
- *Mastering Display Min Luminance:* 0.005 (0 for OLED)
- *MaxCLL:* 1000
- *MaxFall:* 400

HLG HDR Content Calibration

VideoForge PRO *Source Settings* options for HLG HDR content (Figure 2):

Note: When enabling HLG, the Color Format should be set to “RGB Limited,” as the VideoForge PRO does not support correct triplets for YCbCr output.

- *Color Format:* RGB Limited 10-bit
- *HDR:* HDR10
- *EOTF:* HLG

Dolby Vision HDR Content Calibration

VideoForge PRO *Source Settings* options for Dolby Vision HDR content (Figure 2):

Note: For Dolby Vision HDR mode, the VideoForge PRO resolution must be manually set to 1080p.

- *Color Format:* RGB Full 8-bit
(The patterns are actually 4:2:2 YCbCr 12-bit. Dolby Vision tunnels the YCbCr 12-bit patterns through the RGB 8-bit signal path.)

- *HDR:* Dolby Vision
- *Dolby Vision Mode:*
 - *Perceptual* - To be selected when using the *Dolby Vision* workflow (not to be used with the *Dolby Vision Custom* workflow).
 - *Relative* - To be used with the *Dolby Vision Custom* workflow, to perform the *Metered Calibration* steps.
 - *Absolute* – To be used with the *Dolby Vision Custom* workflow, to perform the *Post Calibration* steps.
- *Specialty Patterns:*

In Dolby Vision mode, the VideoForge PRO specialty patterns display to the TV screen, but they are SDR, not Dolby Vision HDR.

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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