Clarity® Matrix® ColorBalance™ Tool

August 2017

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Agenda

- Product Overview

- Expectations

- Required Tools

- Software Overview

- Troubleshooting

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PRODUCT OVERVIEW

Background

- Color Balancing on Clarity Matrix LCD Video Walls today is done manually by eye
- Current color balance tool not considered good enough performance
- We have partnered with SpectraCal to develop an improved automated tool
- We need your help in validating the product

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Introduction to Clarity® Matrix® ColorBalance™

Color and Brightness Balancing Tool

- A hardware and software solution used to optimally color balance your Clarity Matrix LCD video wall system with G2 architecture
- Flexibility to calibrate to desired brightness and color temperature
- Optimized workflow to get your Wall balanced as quickly as possible
- Logging and reporting allows integrators to leave a calibration document with the end user

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ColorBalance™ Hardware

The Clarity Matrix ColorBalance tool ships with a USB <u>tri-stimulus meter</u>.

Used to take measurements from specified points on the Clarity Matrix wall. Measurements include:

- Luminance
- RGB color points
- Grayscale
- Gamma

The ColorBalance software takes the measurements and sends balancing adjustments to the Clarity Matrix Quad Controllers, resulting in a perfectly visually-balanced wall.

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ColorBalance™ Software

What you need:

- Windows PC (internet connection is required for license key validation)

- ColorBalance™ Software (A USB flash drive containing the software ships with the product)

- License key card (contains the software ID and license key - this ships with the product)

ColorBalance™ License Transfer

A CalMAN license can be transferred from one computer to another, in a few simple steps.

- First, deactivate the software license on the current CalMAN computer, by selecting *Deactivate* on the CalMAN license dialog. Following the prompts to complete deactivation.

- Install and activate the software license on the next computer

- Note: Each CalMAN license is limited to ten deactivations. If there is a reasonable case, Portrait Displays Customer Service can issue additional deactivations (support@spectracal.com)

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SETTING EXPECTATIONS

Expectations

Everyone wants a tool that perfectly matches displays, but unfortunately that doesn't exist (yet).

The limitations of LCD display technology means there are too many variables:

- Panel age
- Panel uniformity
- Backlight uniformity
- Viewing angles

Displays that promise "Auto Calibration" or some type of internal calibration leave too many things to chance and the results are not very good.

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Expectations

The best way to calibrate a display is with a <u>tri-stimulus meter</u>.

Tri-Stimulus Meter reads the luminance and color from the correct location:

- Externally
- Luminance measurement
- RGB color points
- Grayscale
- Gamma

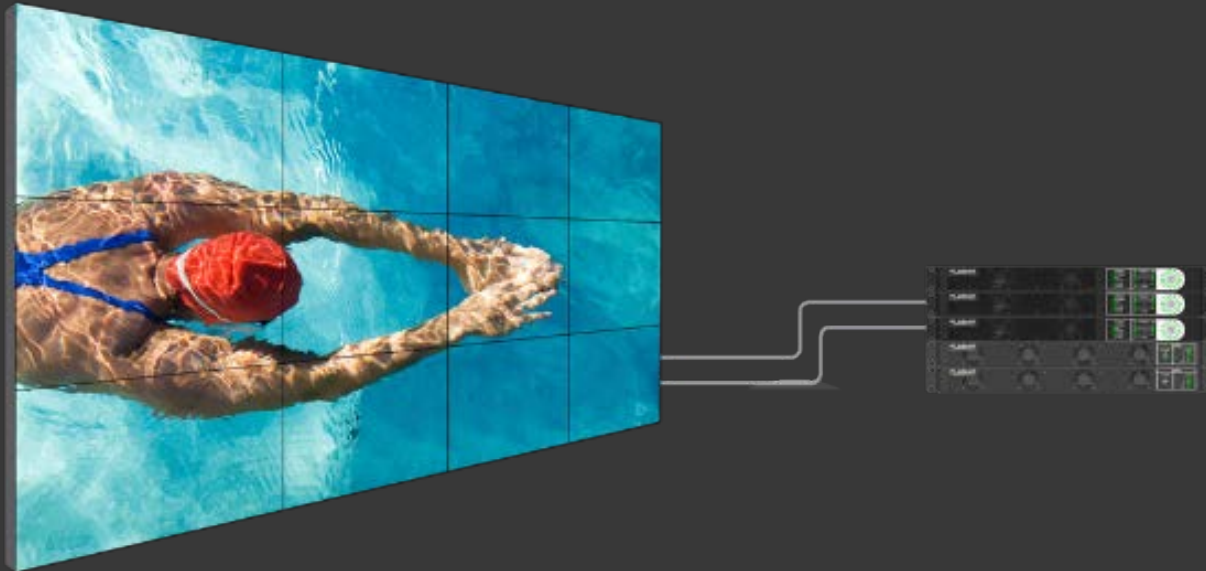This can all be done manually with any properly calibrated meter.

Clarity Matrix ColorBalance offers a more seamless, step by step method that takes the readings, then makes the adjustments within the Quad Controllers
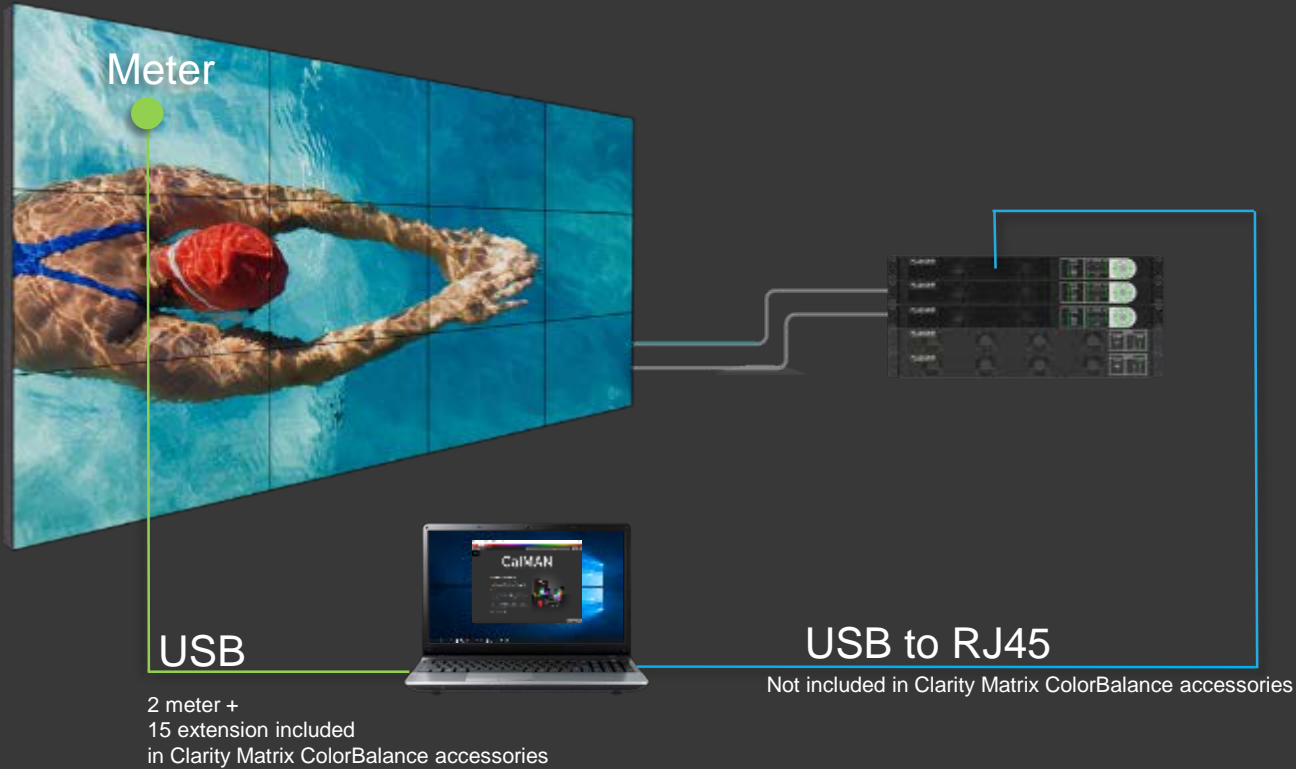
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REQUIRED TOOLS

Clarity Matrix LCD Video Wall System with G2 Architecture

- All panels must be installed and operational
- Run "Auto Layout" in Matrix OSD (helpful, but not required)

Tools You Will Need

Meter

USB

2 meter +
15 extension included
in Clarity Matrix ColorBalance accessories

USB to RJ45

Not included in Clarity Matrix ColorBalance accessories

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Clarity Matrix ColorBalance Software

What you need:

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- ColorBalance Software (A USB flash drive containing the software ships with the product)

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Clarity Matrix ColorBalance

Congratulations on your purchase Clarity Matrix ColorBalance Tool!

LICENSE KEY

AVAILABLE DOWNLOADS: 1

Your purchase includes a single user license of Clarity® Matrix® ColorBalance™ Software.

Software installation and validation steps:
1. Copy the included software installer file to a local folder.
2. Run the software installer and follow installation wizard.
3. When running the software for the first time, enter the license key information listed above. *Note: An internet connection is required to complete the software installation and license validation.*

For additional information:
Visit Planar and Leyard Partner Portal

For Service & support:
Call +1 866 752 6271

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Clarity Matrix ColorBalance Software

How to install:

- Open the installation file from the flash drive

- The Setup Wizard will guide you through the software installation process
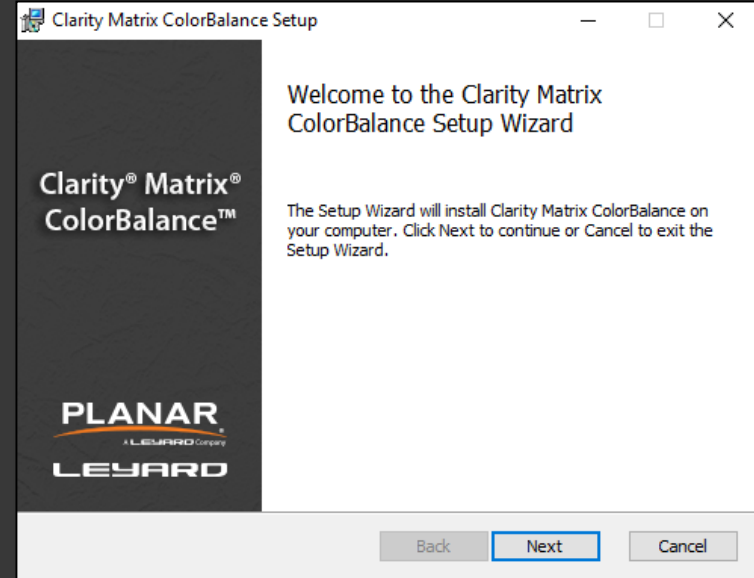
Clarity Matrix ColorBalance Meter

Clarity Matrix ColorBalance Meter:

- Xrite i1d3 Tri-Stimulus Meter

- Includes attached 2m USB cable

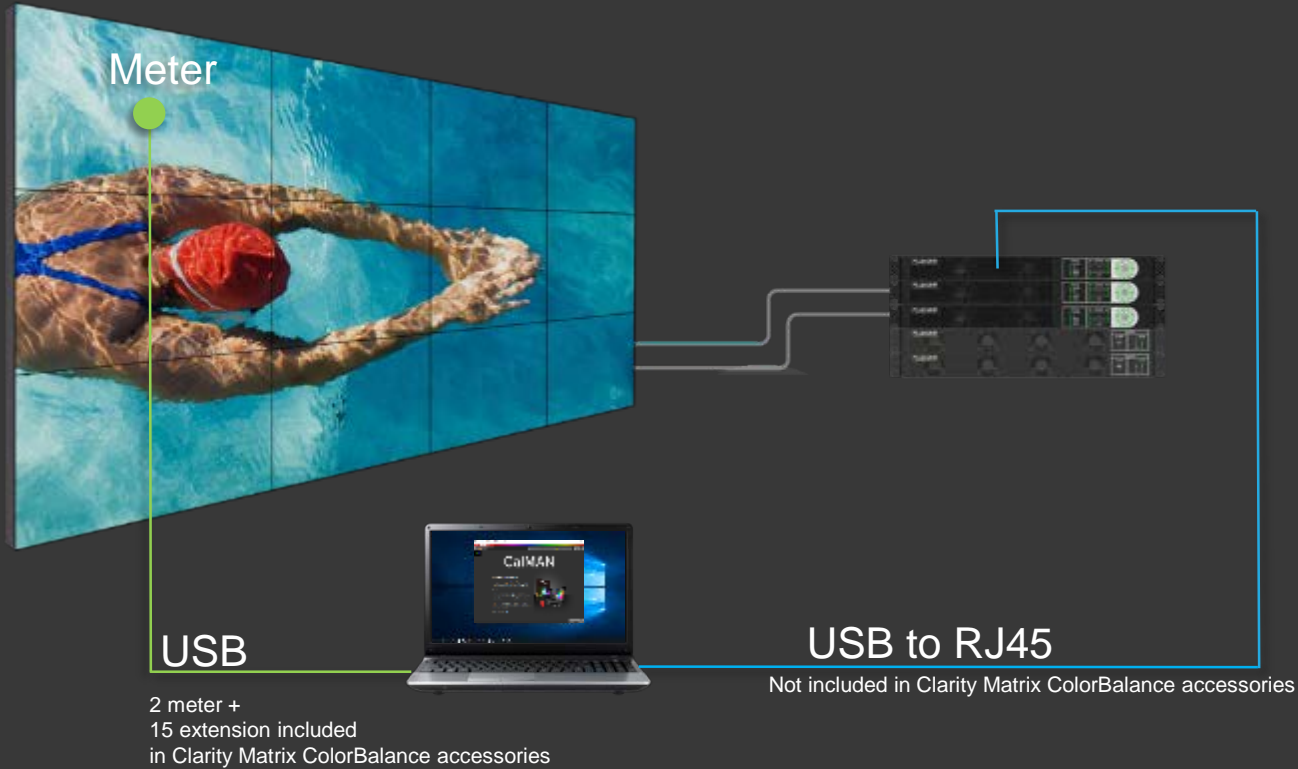The SpectraCal based program is compatible with many meters if integrators have their own meter

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Cables

Clarity Matrix ColorBalance Meter cable:

- Requires its own cable

- 15 ft. USB extension cable included

- Use to connect your computer to Quad A's RJ45 input
  - USB to serial
  - Long run of Cat5

Take the distance from Quad A to the wall into consideration

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Tools You Will Need

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USB

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15 extension included
in Clarity Matrix ColorBalance accessories

USB to RJ45

Not included in Clarity Matrix ColorBalance accessories

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SOFTWARE OVERVIEW

Clarity Matrix ColorBalance Software Overview

- Built upon SpectraCal's CalMAN software

- Specifically for use with Matrix G2 ONLY

- There are a lot of controls

- If you don't know what it does, you probably shouldn't touch it

- Stick to the basic workflow steps
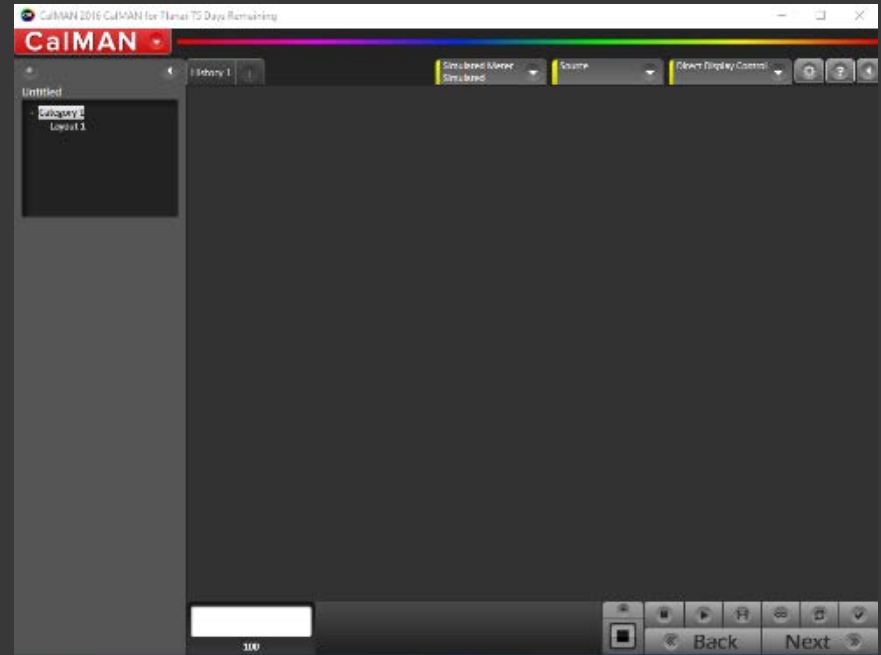
Clarity Matrix ColorBalance Software Overview

Connection Tabs
- Green: Good connection
- Yellow: No connection
- Red: Issue

Meter Control
- Mouse over any button for a description
- Controls the meter's reading

Advances through the work flow

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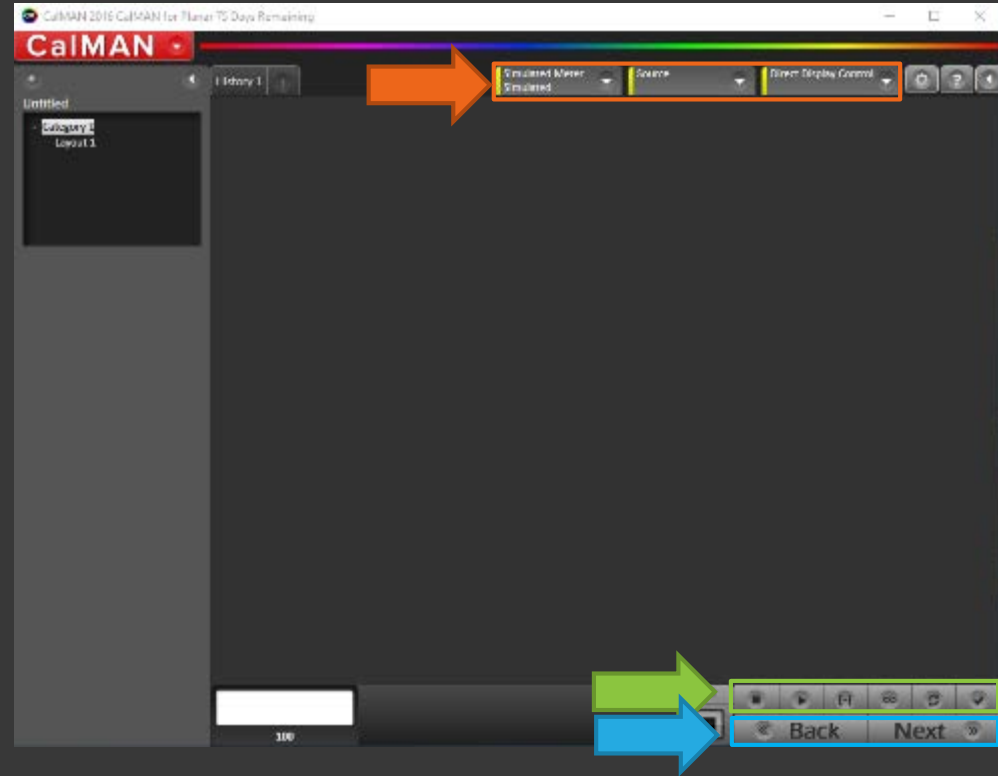
Clarity Matrix ColorBalance Software

Main Menu

- Start and save separate calibration sessions

- Open Templates (Matrix Only)

- Create reports

- Enter license key

- Error logging

- Help (instructions)
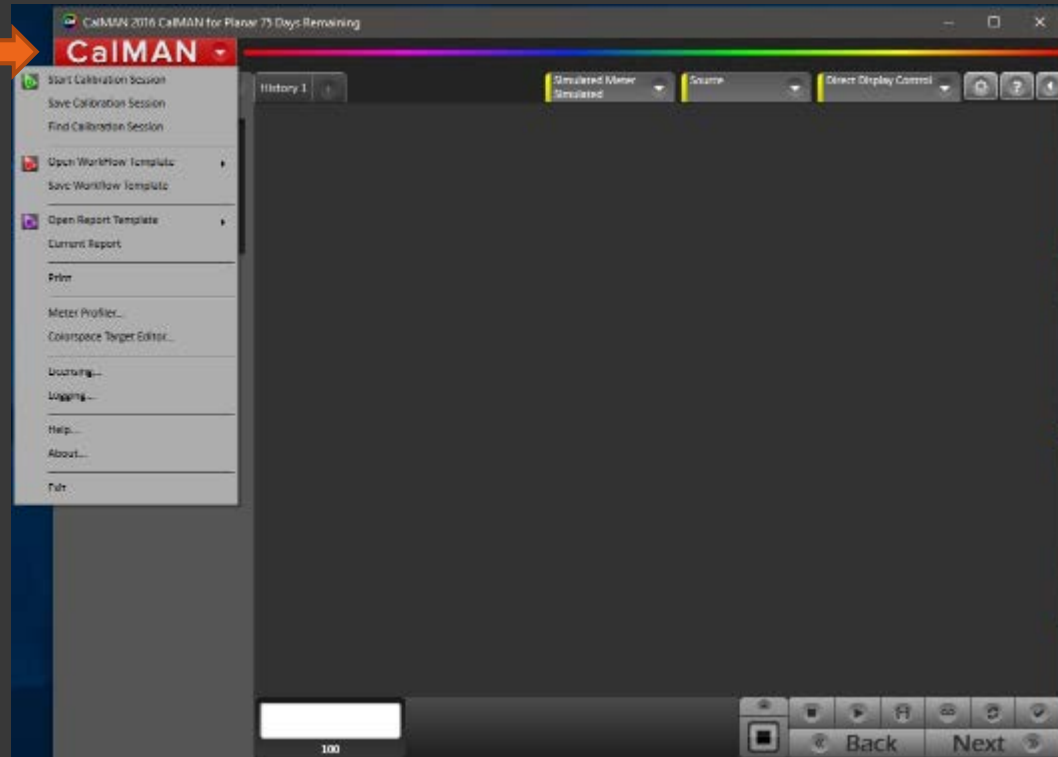
Clarity Matrix ColorBalance Software

Main Menu

- Sends Test Pattern command to Quad
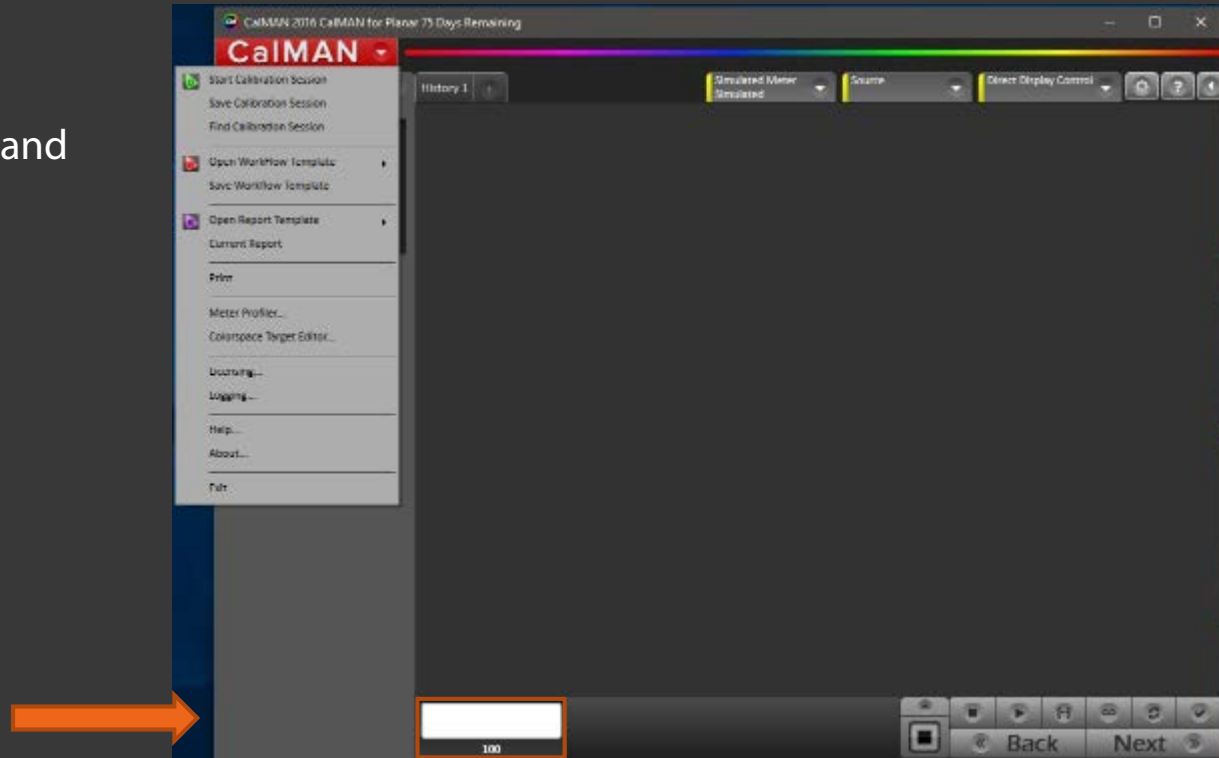
CALIBRATION WORKFLOW

Getting Started

1. Install Clarity Matrix Video Wall

2. Run "Auto Layout"

3. Connect meter to Computer

4. Connect Computer to Quad A RS232 input

5. Start ColorBalance Software
   - If the Connection Tabs are yellow, something isn't right

6. Open the tab and check the connection

7. Restart the software when there are problems

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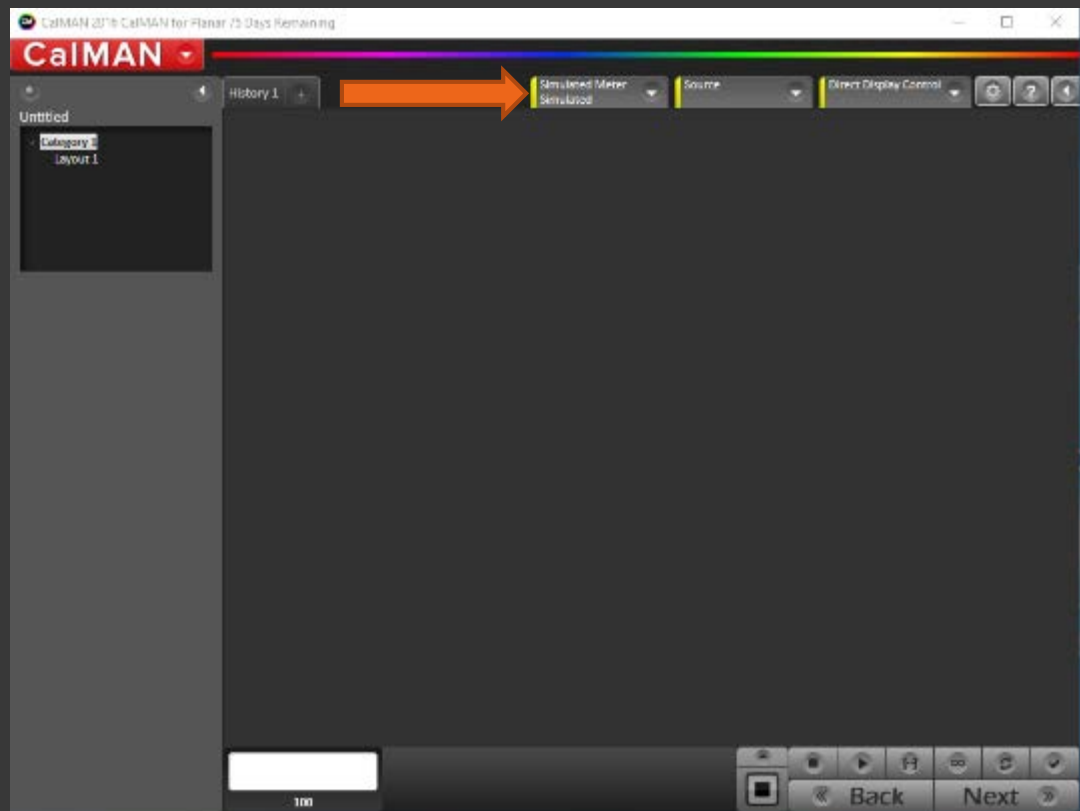
Error Logging

In case there are problems, it's a good idea to always have error logging active

1. Go to the main menu
2. Select error logging
3. Check all the boxes

Connecting the Hardware

- If everything is right, the Tabs will be Green
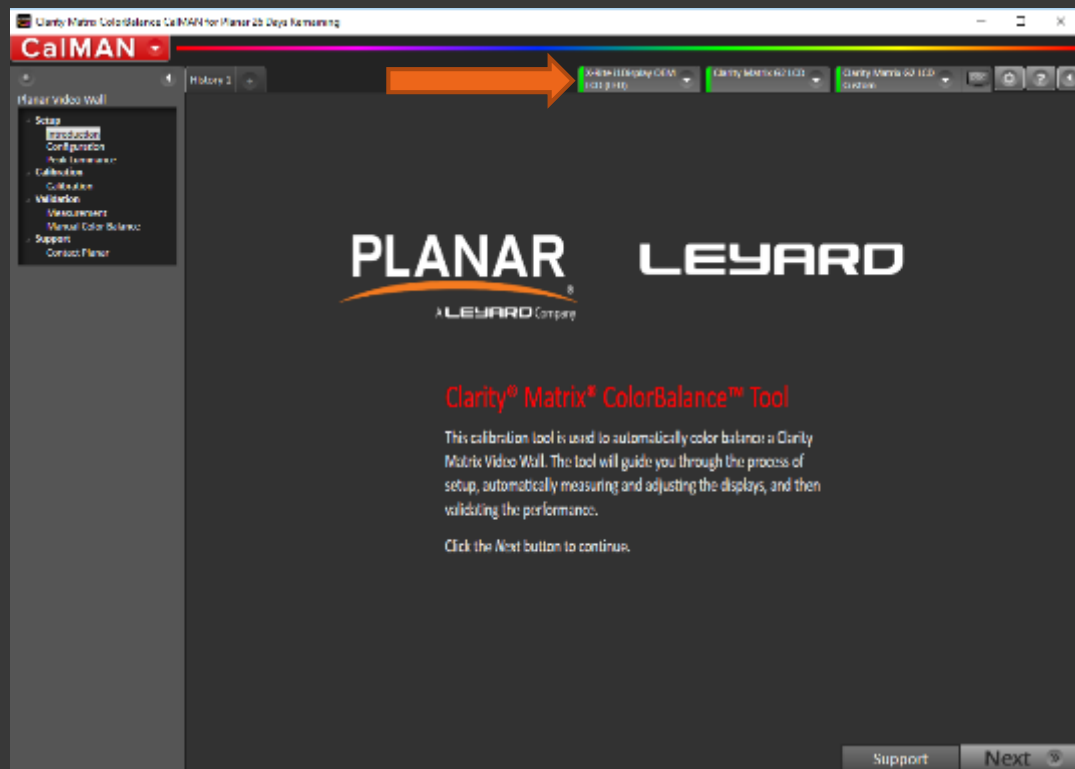
Connecting the Hardware

If everything is right, the Tabs will be Green

On your very first use, you may be prompted to:

- Find Meter
- Find Wall
- Find Source
- Find Display
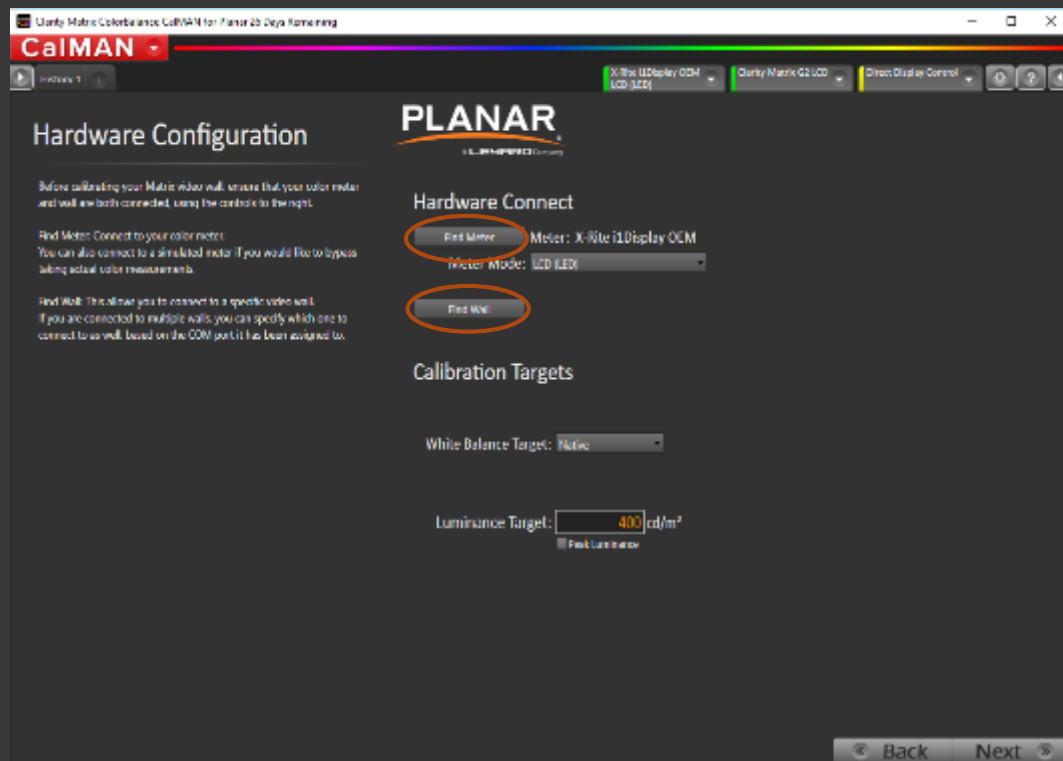
Connecting to a Source

Normally, the third tab is used to control a source

In this case, the "source" is the quad's internal test patterns
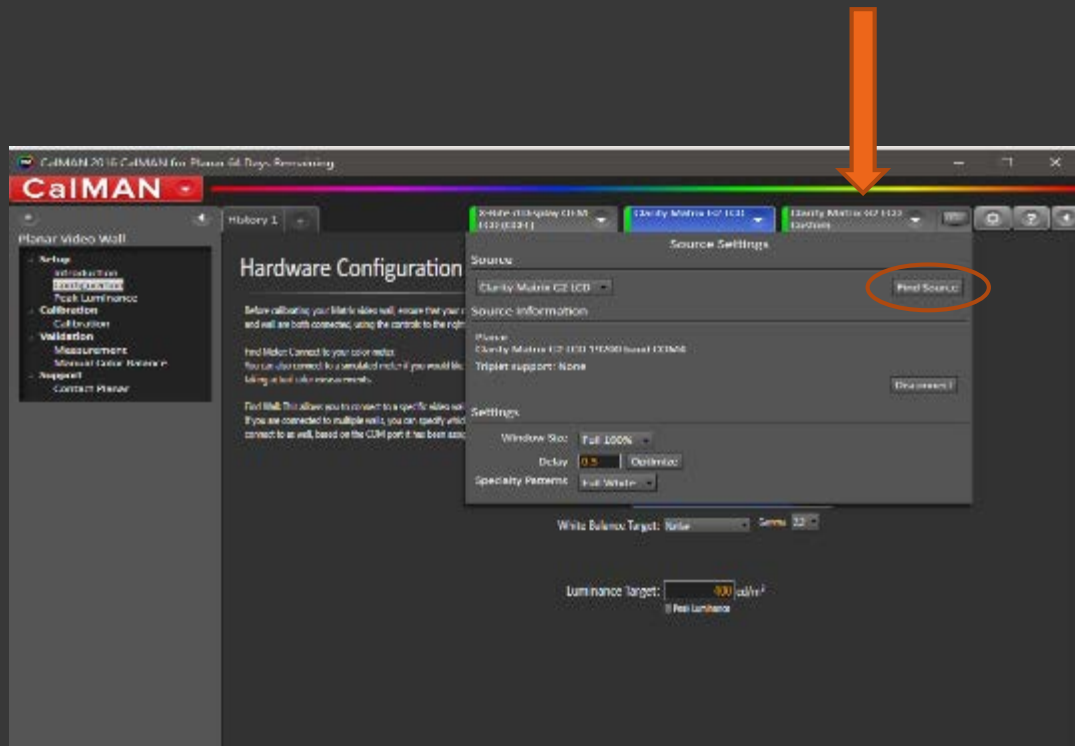
Calibration Workflow

Pick your target:

- Native
- Peak Luminance
- Specific Color Temp
- Gamma

Choose Peak Luminance unless the customer has a specific requirement for a color target or luminance level

- This will calibrate for maximum brightness
- White Balance Native
- Gamma: 2.2
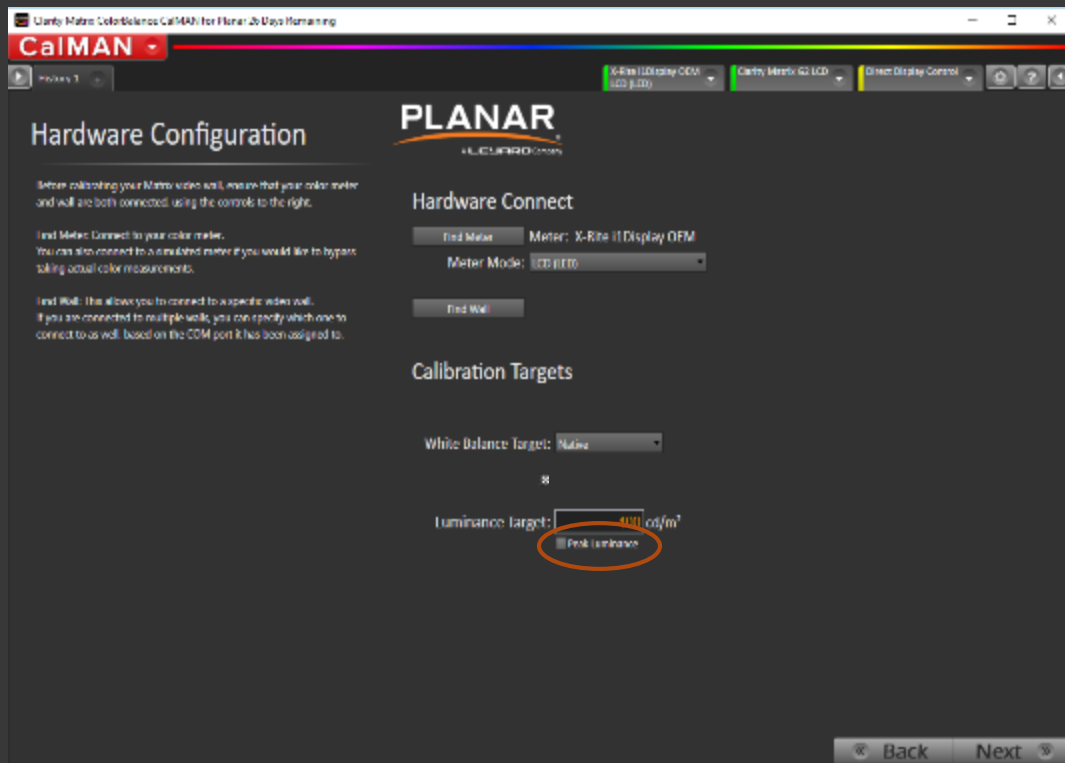
Calibration

Once you have your wall layout accurately represented in the software

- Select calibration order
- Choose Single Panel or All Panels
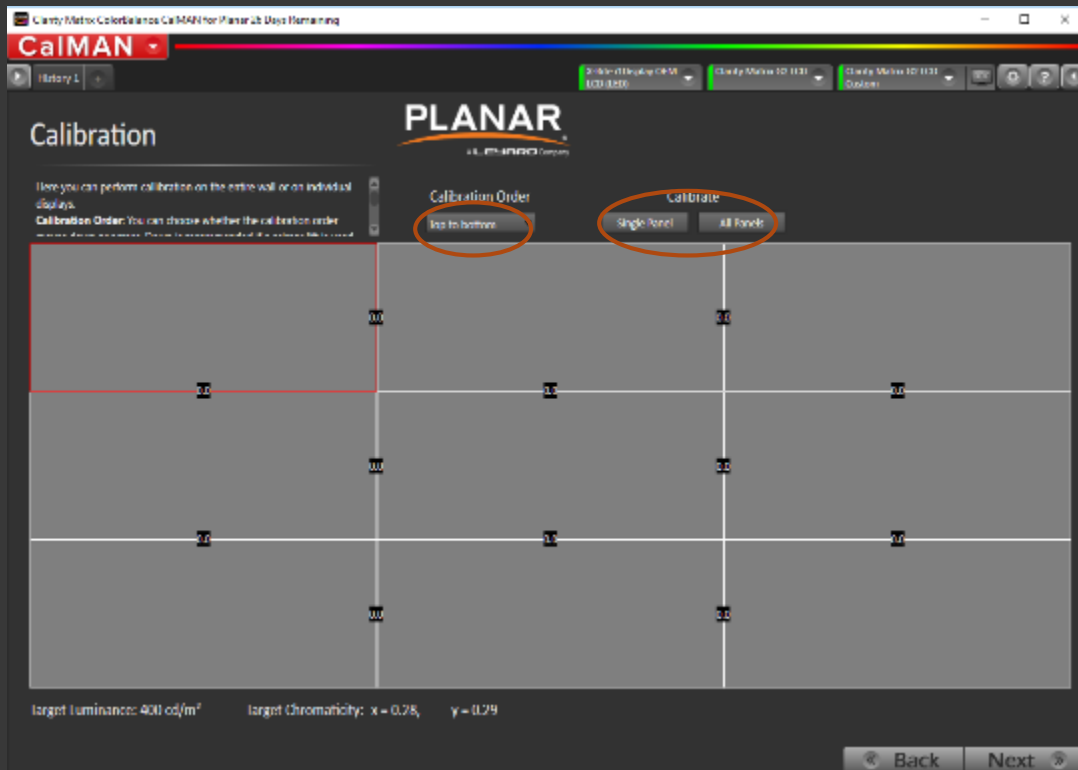
Calibration

Once you have your wall layout accurately represented in the software

- Select calibration order

- Choose Single Panel
  or All Panels

- Follow Prompts
  (2 min per display)
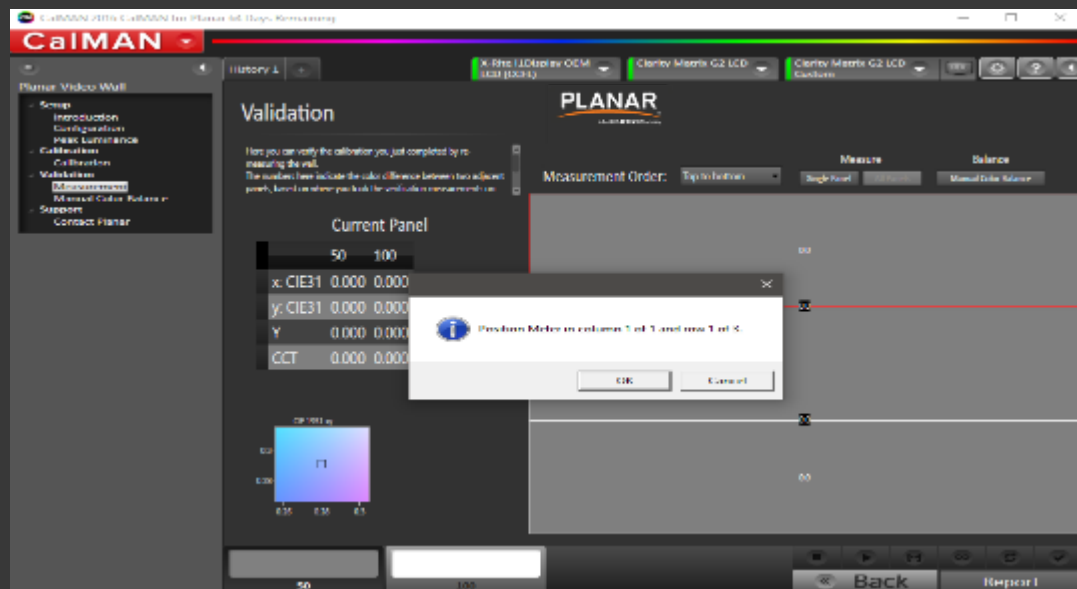
Calibration

Once you have your wall layout accurately represented in the software

- Select calibration order

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- Follow Prompts

- Communication is indicated by the green tabs turning white

Validation

Once you have your wall layout accurately represented in the software

- Select calibration order

- Choose Single Panel or All Panels

- Follow Prompts

- Communication is indicated by the green tabs turning white

- Choose "Report"

Validation

Once you have your wall layout accurately represented in the software

- Select calibration order

- Choose Single Panel or All Panels

- Follow Prompts

- Communication is indicated by the green tabs turning white

- Choose "Report"

- Save Session, View Report, Start New or Exit
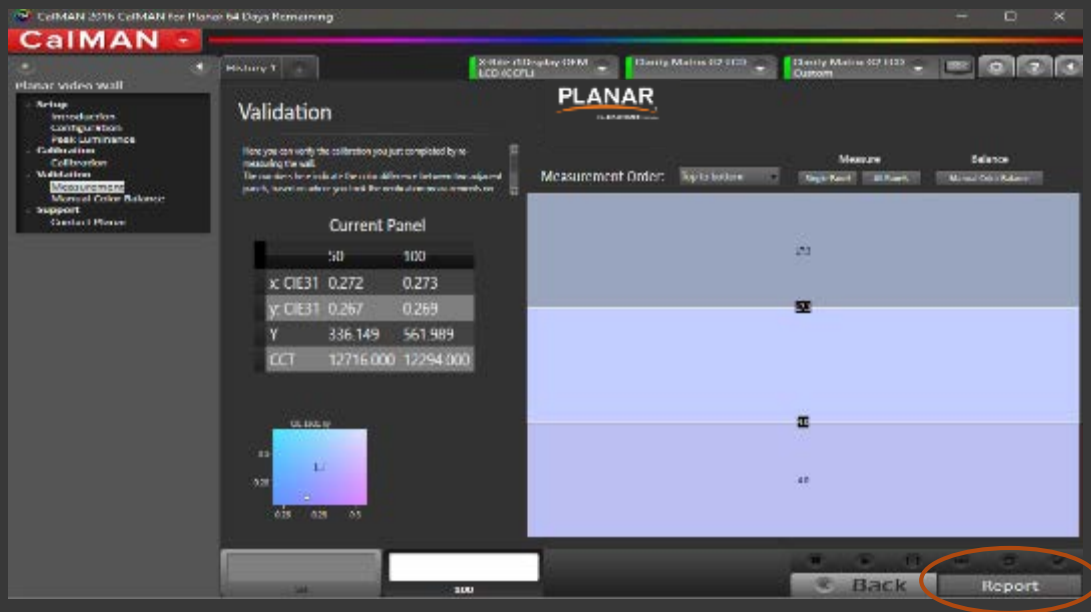
Report

- Print

- Export to PDF

Please email your report to John.Dixon@planar.com, so that we may begin to track all calibrations, and gather data on the behavior of the walls, the software, calibrations etc
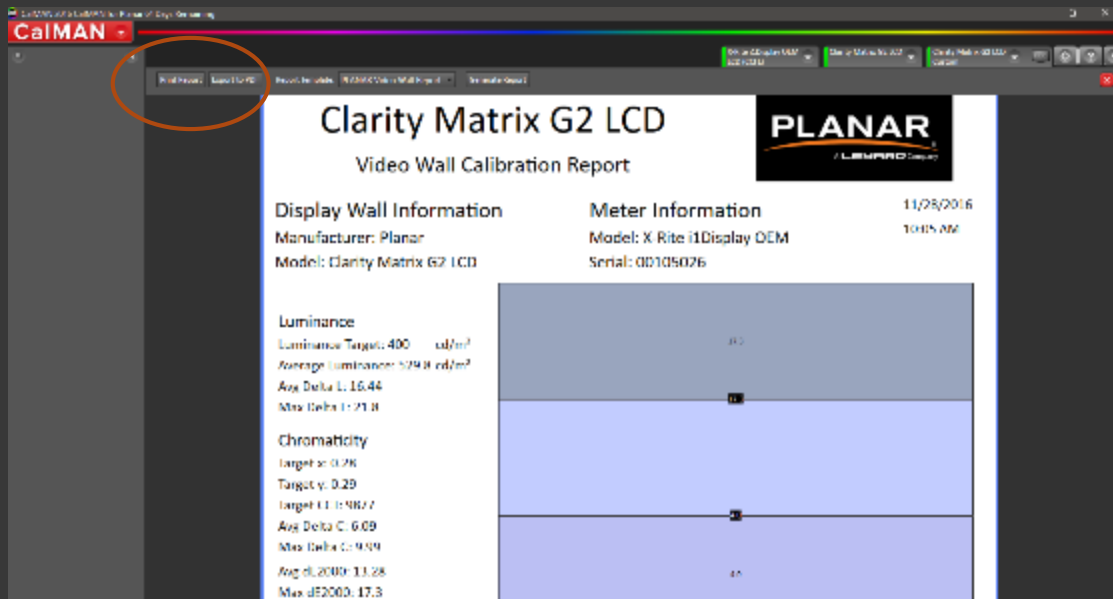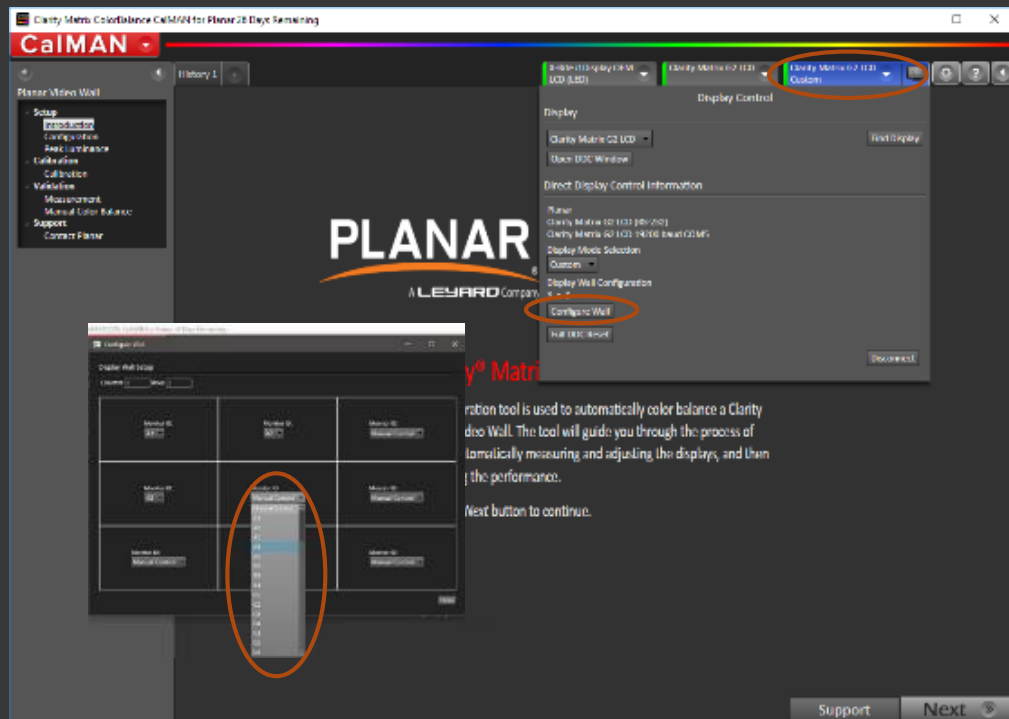
ADVANCED SETTINGS

Controlling Individual Panels

If the "Matrix Layout" in the Quad Controller is not set up, you can configure the software to match the wall layout.

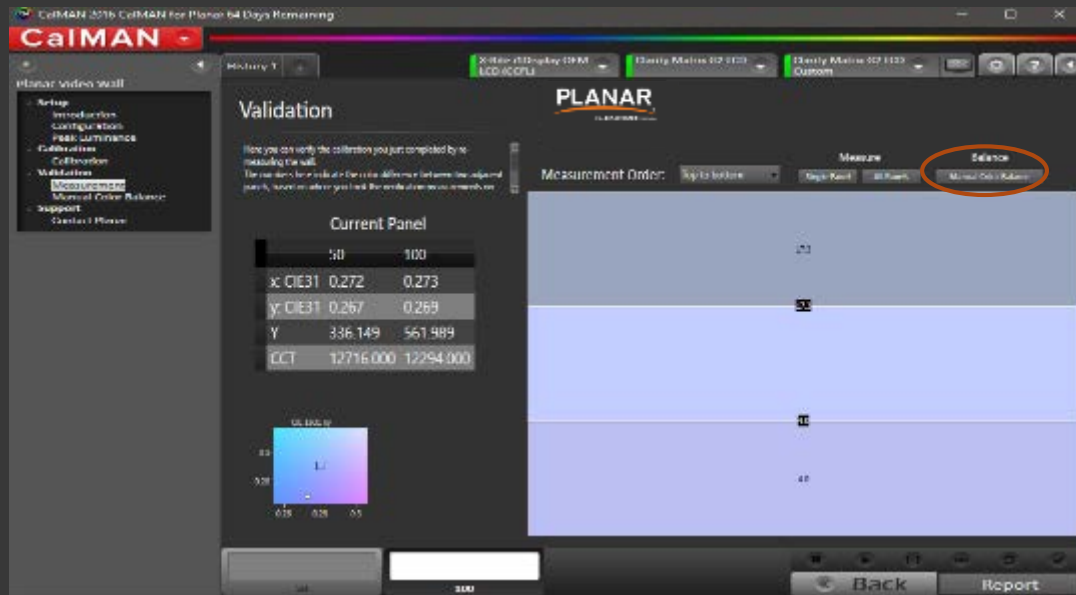Also a convenient way to control the wall without a remote, over RS232

Under "Matrix G2 LCD Custom" Tab

- Select "Configure Wall"
- Set "Columns" and "Rows"
- Set the ID for each panel

Manual Color Balance

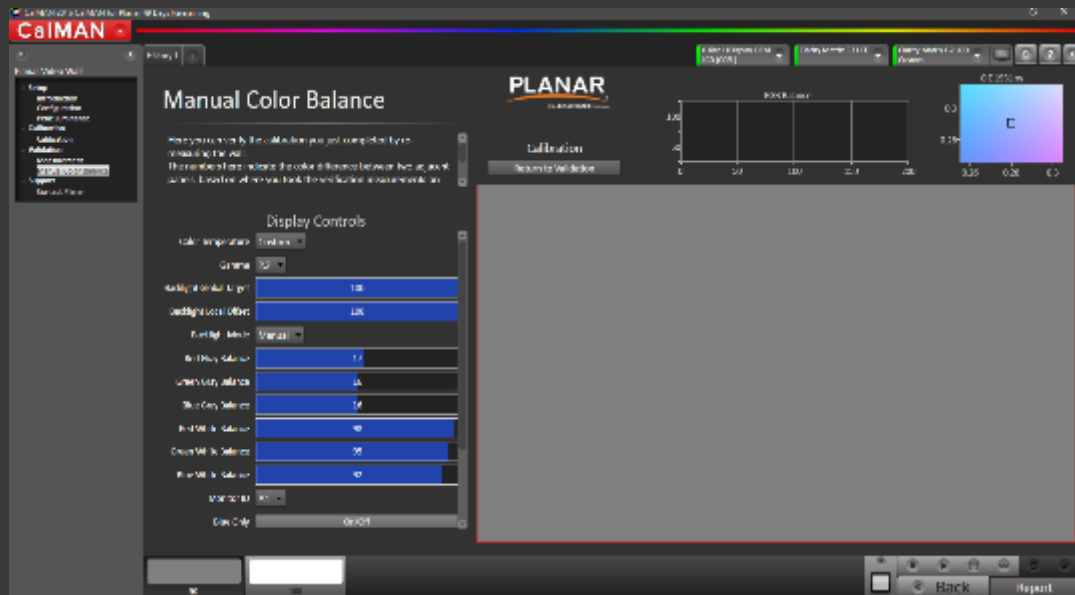Selecting "Manual Color Balance" allows for manual RGB adjustment of the wall

Manual Color Balance

Selecting "Manual Color Balance allows for manual RGB adjustment of the wall

- A great way to fine-tune the entire wall or individual panels, after you have calibrated the wall.

- A convenient alternative to using the remote and OSD to control the wall

THANK YOU

Consider the environment before printing this presentation.