

SCREEN CALIBRATION

A Beginner's Complete Guide

Using the Calibrite Display Pro HL

Welcome — You're in the right place

This guide will take you gently through everything you need to know about calibrating your screen. You don't need any technical background. Just follow each section in order, at your own pace.

By the end, your screen will display colours far more accurately — and you'll know exactly why that matters.

Part 1 — What Is Screen Calibration, and Why Does It Matter?

Let's start with the honest truth: most screens, straight from the factory, do not show colours accurately.

Manufacturers deliberately set screens to look vivid and bright in a shop — boosting blues, cranking up the brightness, pushing contrast to eye-catching extremes. It looks impressive under fluorescent lighting surrounded by competing screens. But it bears little resemblance to reality.

For most everyday use — watching films, browsing the web — this doesn't matter much. But if you care about photography, graphic design, printing, or sharing images with others, it matters enormously.

What goes wrong without calibration?

- A photo you edit on your screen may look **completely different** when someone else views it — or when you send it to a printer.
- Skin tones may look too orange or too pink.
- Shadows may look muddy, or highlights blown out.
- Colours you carefully adjust may shift when the file moves to another device.
- Blue-heavy screens cause more eye strain over long sessions.

Think of it this way

Imagine you're painting a room and your colour chart has been printed on the wrong paper — every shade looks subtly different to the real paint tin. You'd make decisions based on false information.

An uncalibrated screen is exactly that: a colour chart printed wrong. Calibration puts it right.

Part 2 — What Is the Calibrite Display Pro HL?

The Calibrite Display Pro HL is a small device that you hang on your screen. It measures the actual colours your screen produces and compares them to what they should be. From this, it creates a correction file — a colour profile — that your computer applies automatically, invisibly, from that point on.

What the device looks like

It is small — roughly the size of a **computer mouse**, but flatter and more egg-shaped. At one end is a lens (the measuring eye). At the other end is a counterweight attached to a USB cable. The counterweight is what keeps the device hanging flat against your screen during measurement.

Important — the diffuser cap

On the lens end, there is a small protective cap called a diffuser. This cap is for measuring projectors and ambient light — not for screen calibration.

Before you use the device on your screen, you **MUST** remove this cap by lifting up from its storage position. Then rotate the diffuser to the base of the unit. The lens must be uncovered and facing the screen directly.

The cap simply pulls up and rotates for safe keeping. **Don't forget to replace the diffuser back over the lens after you have finished using the calibrator!**

How the device attaches to the screen

The device is simply hung over the top edge of your screen. The weight of the counterweight behind the screen pulls the cable taut, which in turn, holds the profiler snug and flat against the screen surface — no sticky tape, no clamps, nothing fiddly.

The software tells you exactly when and where to place it. You don't need to position it precisely yourself.

Part 3 — What Is a Colour Profile?

When the calibration is complete, the software creates a small file called a colour profile (sometimes called an ICC profile). This is the 'prescription' for your screen.

Think of it like prescription glasses. The lenses are ground precisely to correct **your** vision, not someone else's. The colour profile corrects **your** screen, not a different one.

Where the profile is stored

On Windows:

The profile is stored automatically in Windows' own colour management system. You don't need to find it or move it. Windows keeps it here:

Windows location

C:\Windows\System32\spool\drivers\color

Windows then links this profile to your specific monitor and loads it automatically every time you log in.

On Mac:

The profile is stored in macOS's own colour system and linked to your display automatically. It lives here:

Mac location

/Library/ColorSync/Profiles/

macOS loads it silently in the background every time the screen is used. You won't see it happen, but it is always working.

You don't need to do anything with these files

The calibration software places the profile in exactly the right location automatically. The profile works silently in the background from this point on.

Photoshop, Lightroom, and most other colour-aware software will detect and use the profile without any extra steps from you.

Part 4 — Before You Begin

A few minutes of preparation make calibration much more reliable. Please read this section before plugging anything in.

Warm up the screen

Screens change their colour behaviour when they are cold. A screen that has just been switched on will give different readings to a screen that has been running for 30 minutes.

Allow at least 30 minutes

Switch on the screen you intend to calibrate and leave it running for at least 30 minutes before starting the calibration software.

During this time, you can read ahead or prepare your software.

Control the room lighting

Strong light falling directly on the screen surface will interfere with the measurement. The device is measuring light coming from your screen — any extra light mixing in will distort the readings.

- Close blinds or curtains if strong daylight hits the screen.
- Avoid having a bright lamp shining directly at the screen.
- Normal room lighting is fine — you don't need to work in darkness.

Also avoid sitting in a brightly lit room while making colour judgements after calibration. Your eyes adjust to ambient light, which changes how you perceive colours on screen.

If you have more than one screen

This is straightforward, but worth understanding before you start.

Each screen is calibrated separately. Each gets its own colour profile. Your computer remembers which profile belongs to which screen, so you do not need to do anything special.

For your first calibration, if possible, it is easiest to disconnect or disable the second screen temporarily. This avoids any confusion about which screen you are working on. Reconnect it afterwards, then calibrate the second screen as a separate step.

If disconnecting is not practical, both screens can remain connected — just make sure you clearly identify which screen you are calibrating at each stage.

Reset your screen's own settings

Your screen may have its own buttons or on-screen menu for adjusting brightness, contrast, and colour. These are separate from what the calibration software does.

Recommended first step

Before calibrating, use your screen's own menu to reset it to its factory defaults. Look for an option called 'Reset', 'Factory Reset', or 'Default Settings'.

This gives the calibration software the most accurate starting point to work from.

Part 5 — Installing the Software — Windows

You need to install the Calibrite PROFILER software before connecting the device. This is the programme that controls the measurement and creates your colour profile.

Windows Installation

1

Download the software

Open your web browser and go to: calibrite.com
Find the Downloads section and download Calibrite PROFILER (Version 3 or newer).

2

Run the installer

Locate the downloaded file (usually in your Downloads folder).
Double-click it to run the installer.
Accept the default options — you do not need to change anything.
Click through until the installation completes.

3

Restart your computer

When installation finishes, restart Windows.
This is important — do not skip this step. The software needs a fresh start to work correctly.

Important note for Windows users — DisplayCAL / ArgyllCMS

If you have ever used a different calibration programme called DisplayCAL or ArgyllCMS on this computer, there may be a conflict.

These older programmes install their own driver that can prevent Calibrite PROFILER from detecting the device. If Calibrite cannot see the device after connection, this is the most likely cause.

Ask your group administrator for the separate troubleshooting guide if this applies to you.

Part 5 — Installing the Software — Mac

You need to install the Calibrite PROFILER software before connecting the device. This is the programme that controls the measurement and creates your colour profile.

Mac Installation

1

Download the software

Open Safari or your preferred browser and go to: calibrite.com
Download Calibrite PROFILER for Mac.

2

Install the application

Open the downloaded .dmg file.
Drag the Calibrite PROFILER icon into your Applications folder.
Eject the disk image when done.

3

Allow permissions

The first time you open the app, macOS may ask for permission to access the USB device.
Click Allow or OK when asked.
If macOS warns that the developer is unknown, go to System Settings > Privacy & Security and click 'Open Anyway'.

4

Restart your Mac

Restart before proceeding. This ensures the software is fully active.

Part 6 — Connecting the Device

With the software installed and your computer restarted, you are ready to connect the Display Pro HL.

1 Remove the diffuser cap

Find the cap on the lens end of the device — it is the rounded plastic cover. Pull it off gently and set it aside somewhere safe. The lens (a small dark window) should now be exposed and visible.

2 Rotate the counterweight arm

On the back of the device there is a small arm. Rotate it outwards. This allows the device to be hung over the top edge of a screen. When the arm is extended correctly, the device will sit flat against the screen when hung.

3 Plug in the USB cable

The USB cable is attached to the counterweight. Plug the other end into a USB port on your computer. Use a port directly on the computer rather than a hub if possible — this gives the most reliable connection. Wait a few seconds after plugging in.

4 Check the connection

On Windows: your computer may briefly show a message saying it is setting up a new device. This is normal. Wait for it to finish.
On Mac: nothing visible will happen, but the device is ready.
Do NOT hang the device on the screen yet — wait for the software to instruct you.

What if my computer doesn't recognise the device?

Try a different USB port — sometimes a port simply doesn't respond. Make sure the cable is fully inserted at both ends.

On Windows: open Device Manager (search for it in the Start menu) and look for the device under 'Human Interface Devices'. If you see it listed there, it is connected correctly.

If you are on Windows and have previously used DisplayCAL, see the troubleshooting note in Part 5.

Part 7 — Running the Calibration

This is the main event. The process is largely automatic — the software does the hard work. Your job is to follow the prompts and stay patient while it measures.

Launching the software

- **Windows:** Open Calibrite PROFILER from the Start menu or desktop shortcut. Do not right-click and 'Run as administrator' — launch it normally.
- **Mac:** Open Calibrite PROFILER from your Applications folder.

The software will check for the connected device when it opens. If it finds the Display Pro HL, you will see it listed on screen. If not, check the USB connection and try again.

Selecting your display

The software will show a list of connected displays. Click on the screen you intend to calibrate to select it. If you have only one screen, it should already be selected.

Multiple screens reminder

Make absolutely sure you select the correct screen here. The name shown should match the make and model of the screen you want to calibrate.

If you are unsure which is which, move the Calibrite PROFILER window to the screen you intend to calibrate — the selected display should follow.

Choosing the calibration settings

The software will offer you some settings to choose before measuring. For most users, the preset or recommended settings are perfectly correct. Here is what the main options mean, in plain English:

Setting	What it means
White Point	This is the colour of 'pure white' on your screen. D65 is the standard for photography and most digital work — it matches natural daylight. Leave this at D65 unless you have a specific reason to change it.
Luminance / Brightness	How bright the screen will be. 100–120 cd/m ² is recommended for most photography work. The software can guide your screen's brightness adjustment during calibration.
Gamma	This controls how the screen handles the tones between black and white. Gamma 2.2 is the standard for Windows and general photography. Mac users can also use 2.2 — this is recommended for consistency. Leave this at the default unless advised otherwise.

Adjusting brightness (if prompted)

Some versions of the software will ask you to adjust your screen's own brightness before measuring. If this happens:

- Use the physical buttons on your screen (usually on the bottom edge or side) to adjust brightness.
- The software will show a slider or dial showing whether you are above or below the target.
- Adjust until the indicator is in the target range, then click to confirm.

If the software does not ask you to do this, it will handle the correction automatically in the profile.

Hanging the device on the screen

The software will tell you when it is time to hang the device on your screen. When prompted:

- Hang the device over the top centre of your screen.
- The measuring lens should be flat against the screen surface, facing it directly.
- The cable and counterweight should hang down behind the screen.
- Adjust gently if needed — the device should sit snugly. You don't need to press it hard.

Click to confirm in the software, then step back and do not touch the mouse, keyboard, screen, or cable during measurement.

The measurement process

This is where the magic happens. The software will display a series of coloured patches on your screen — reds, greens, blues, greys, and everything in between. The device measures each one accurately.

What to expect during measurement

- Your screen will flash with many different colours — this is completely normal and expected.
- The process takes approximately 5 to 10 minutes.
- Do not touch anything during this time — even a slight knock can affect the reading.
- Do not let anything cast a shadow on the device during measurement.
- The device may feel slightly warm — this is normal.

Just leave it to work and have a cup of tea.

Part 8 — Saving the Profile and Finishing Up

When measurement is complete, the software will show you the results and ask you to name and save the profile.

Naming the profile

Give the profile a clear, meaningful name. A good format is:

Suggested naming format:

ScreenMake_ScreenModel_Date

For example: LG_27UK850_Jan2025
Dell_U2722D_Jan2025
Mac_Internal_Jan2025

This makes it easy to identify profiles later, especially if you calibrate more than one screen or recalibrate in the future.

What happens when you save

- The software places the profile file in the correct location on your system automatically.
- Windows or macOS immediately assigns this profile to your screen.
- The correction is applied — your screen's colour now reflects the calibration.
- From this point forward, every time you switch on your computer, the profile is loaded automatically.

You do not need to do anything further. No settings to apply, no files to move.

What you may notice immediately after calibration

Most people notice one or more of the following when they first see their calibrated screen:

What you notice	Why it's perfectly normal
The screen looks less bright	Factory brightness is usually far higher than needed. Calibrated brightness is more comfortable for long sessions and more accurate for print.
Colours look less vivid or cooler	Factory screens are set artificially blue and punchy. Your screen is now accurate. This is what images actually look like.
Whites look slightly warm or creamy	D65 white is similar to daylight — if your room lighting is warm, calibrated white may appear slightly cream. Your eyes will adjust within a few minutes.
Some things look 'wrong' at first	Your eyes have adapted to the old, inaccurate screen. Give it 15–30 minutes. The new appearance will quickly feel completely natural — and correct.

Trust the calibration

This may be the hardest part: the calibrated screen may look 'wrong' to you at first simply because you have grown used to the wrong version.

The calibration is not wrong. Your eyes will adapt within minutes. After half an hour, the old uncalibrated view will look obviously too harsh and too blue.

Part 9 — Multiple Screens

If you have more than one screen connected to your computer, each one needs its own calibration. Here is how to manage this cleanly.

How Windows handles multiple screens

Windows assigns a separate colour profile to each physical screen independently. Once you have calibrated both screens, Windows remembers which profile belongs to which display and loads them both automatically.

You do not need to do anything extra. However, there is one thing to be aware of:

Check your profile assignments (Windows)

After calibrating all screens, it is worth checking that Windows has the right profile assigned to the right screen.

1. Open the Start menu and search for 'Color Management'.
2. Open Color Management.
3. At the top, use the Device dropdown to select each screen in turn.
4. Tick 'Use my settings for this device' for each screen.
5. Confirm the correct profile is set as default for each screen.

This prevents Windows from accidentally applying the same profile to both screens -it does happen, *even to the 'experts'!!*.

How Mac handles multiple screens

macOS is generally very good at keeping profiles assigned correctly to each display. After calibrating each screen, the profiles are remembered automatically.

If you ever want to check: go to System Settings > Displays, select each display, and confirm the colour profile shown is correct.

Calibrating the second screen

- Reconnect or re-enable the second display if you disconnected it earlier.
- Launch Calibrite PROFILER again.
- This time, select the second display when prompted.
- Follow the same process as before — hang the device on the second screen when instructed, and complete the measurement.
- Save the profile with a clear name that identifies the second screen.

Each screen's profile is independent. Calibrating the second screen does not affect the first.

Part 10 — When to Recalibrate

Calibration is not a one-time job. Screens drift over time as their backlights age and their components settle. A profile that was accurate six months ago will gradually become less accurate.

Recommended schedule

When	Why
Every 4–8 weeks	For colour-critical work such as photography, graphic design, or print preparation. Screens drift noticeably over this period.
After major system updates	Windows and macOS updates can occasionally reset or disturb colour profiles. Recalibrating confirms everything is correct.
If the screen looks different	If colours appear to have shifted — particularly if whites look noticeably warmer or cooler — the screen has drifted and should be recalibrated.
When loaning the calibrator	When the group's calibrator becomes available, take the opportunity to recalibrate even if you are not sure whether you need it.

Part 11 — Quick Reference Summary

Keep this page for future calibrations. Once you have done it once, the whole process takes about 15 minutes.

Pre-calibration checklist

- Screen warmed up for at least 30 minutes
- Screen reset to factory defaults
- Room lighting controlled (no direct light on screen)
- Calibrite PROFILER software installed
- Computer restarted after software installation
- Second screen disconnected or identified clearly

Calibration steps at a glance

1. Remove the diffuser cap from the lens
2. Rotate the counterweight arm
3. Plug in the USB cable
4. Open Calibrite PROFILER
5. Select your display
6. Choose settings (D65 white point, 120 cd/m² luminance, Gamma 2.2)
7. Adjust screen brightness if prompted
8. Hang the device on the screen when instructed
9. Leave it to measure — do not touch anything
10. Name and save the profile
11. Done — your screen is calibrated

Remember

- The screen may look different immediately after calibration — this is correct
- Your eyes will adapt within 15–30 minutes
- Recalibrate every 4–8 weeks, or whenever the group calibrator is available
- Each screen needs its own profile
- Nothing you do during calibration permanently damages the screen

*Calibrite Display Pro HL - Calibration Guide
Prepared for BPG members by Simon Nottage
for personal use and group calibration sessions only*
