datacolor

Datacolor Spectro P-Series

P300 & P200

User's Guide

Datacolor Spectro P-Series User's Guide: P300 & P200
Part No.037-400047 Rev F, February 20, 2025

All efforts have been made to ensure the accuracy of the information presented in this format. However, should any errors be detected, Datacolor appreciates your efforts to notify us of these oversights.
Changes are periodically made to this information and are incorporated into forthcoming versions. Datacolor reserves the right to make improvements and/or changes in the product(s) and/or program(s) described in this material at any time.

To obtain information on local agents, contact either of the offices listed below, or visit our website at www.datacolor.com.

Support Questions?
If you need help with a Datacolor product, please contact one of our top-rated technical support teams listed in the appendix for the Datacolor office in your area.

Regions	Office	Contact
North America (USA, New Jersey)	Datacolor (R&D HQ)	+1 800 982 6496
South America (Brazil)	Datacolor Color Management Solutions LTD	+55 11 4375 0630
Europe (Belgium)	Datacolor BV	+32 9 243 87 20
Europe (Germany)	Datacolor GmbH	+49 2365 5109 50
Europe (France)	Datacolor France	+33 1 48 18 54 80
Europe (Italy)	Datacolor Italia S.R.L.	+800 15 33 77
Europe (UK)	Datacolor UK LTD	+44 161 9299441
Europe (Türkiye)	Datacolor Renk Teknolojileri Ticaret Ve Servis LTD	+90 216 4553085
Europe (Switzerland & Other Countries in Middle East & Africa)	Datacolor International AG	+41 44 835 38 00
Asia (China, Hong Kong)	Datacolor Asia Pacific LTD	+852 24208283
Asia (China, Shanghai)	Datacolor Trading CO., LTD	+86 21 5308 6988
Asia (India, Mumbai)	Datacolor Solutions PVT LTD	+91 22 20880444
Asia (Vietnam)	Datacolor Vietnam Co., LTD	+84 28 38247968
Asia (Indonesia)	PT. Datacolor Solutions Indonesia	+62 811 11 45557

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Introduction

About:

Datacolor is a global leader in color management solutions, providing precision color measurement instruments, software, and services for industries such as textiles, paint, coatings, plastics, automotive, and consumer electronics. The company specializes in spectrophotometers, color matching software, and quality control solutions, enabling businesses to achieve accurate, consistent, and repeatable color results. With a strong focus on innovation and digital transformation, Datacolor serves a wide range of customers, from manufacturers and designers to retailers and laboratories.

Datacolor's Spectro P-Series is a breakthrough in portable spectrophotometry, designed specifically for professionals who need accurate color measurements under a variety of conditions. This product line is built to deliver consistent, repeatable results no matter where you are, whether in a laboratory, on the production floor, or out in the field. Its compact and durable design means you don't have to compromise on quality when working outside of traditional settings. The series includes two models: the P200 for versatile, everyday color assessments, and the P300 for high-demand, precision tasks. Beyond its reliable performance, the Spectro P Series features an intuitive interface that simplifies complex color quality tasks. With streamlined operation and smart portability, users can quickly capture, analyze, and compare color data, which is essential for industries where color consistency is critical—such as textiles, coatings, plastics, and automotive. In essence, the Spectro P Series not only enhances the efficiency of color measurement workflows but also sets a new standard for precision in portable spectrophotometry.

Feature Summary:

Below is a summary of the standard and optional features included with the instruments.

Standard features include the following:

- Pulsed xenon light source
- Bluetooth functionality to support portable wireless measurement workflows. Wi-Fi functionality is available on the P300 model only.
- Touchscreen functionality to support user experience with intuitive access.
- Integrated camera and viewing display for precise sample positioning. Image capture is available on the P300 model only.
- Dual measurement buttons for ease of use and measurement flexibility.
- Sleep mode to support instrument energy conservation.
- Multiple aperture sizes to accommodate samples of different sizes. Dual-aperture options are available on the P300 model only. (see table below)
- Smart search and data management features for storage and data organization.
- Graphical plots to support insight in color management decisions.

P-Series Part Numbers	
P300 Model Variants	**P200 Model Variants**
LAV/SAV: *1030-1657*	SAV: *1030-1663*
LAV/USAV: *1030-1658*	USAV: *1030-1664*
SAV/USAV: *1030-1659*	LAV: *1030-1665*

Technical Specifications

	P300	P200
Measuring Geometry	d/8°	
Sphere Diameter	54 mm (2.5 inches)	
Light Source	Pulsed Xenon	
Spectral Range	400-700 nm	
Effective Bandwidth	10 nm	
Reflectance Range	0-200%	
Spectrophotometer Principle	Concave holographic grating	
Observer	2° Standard Observer, 10° Standard Observer	
Detector	Dual 256 element diode array	
Color Repeatability	<0.03 CIELab dE* max on white ceramic tile	<0.05 CIELab dE* max on white ceramic tile
Color IIA	0.15 CIELab dE*avg of 12 BCRA tiles 0.25 CIELab dE* max on any BCRA tile	0.20 CIELab dE*avg of 12 BCRA tiles
Measurement Time	2 sec (Gloss off & Image capture off)	
Measurement Interval	3.67 sec (Gloss on & Image capture on with 2 flashes)	
UV Setting	100% / 0% / Adjusted (Instantaneous numerical adjustment of UV with no mechanical filter) 400 nm UV cutoff filter	100%
UV Calibration Support	CIE Whiteness / Ganz-Griesser	-
Apertures Illuminated / measured LAV: 15mm / 11mm SAV: 10mm / 6.5mm USAV: 6.5mm / 2.5mm	<u>Dual Apertures</u> LAV/SAV LAV/USAV SAV/USAV	<u>Single Apertures</u> LAV SAV USAV
Battery Type	Rechargeable Li-Ion Battery (Removable)	
Battery Performance	2000+ Dual Flash Measurements	
Sample Placement	Camera (Live View Alignment)	
Interface	USB-C / BT / Wi-Fi	USB-C / BT
Operating Environment	5º to 40ºC up to 85% RH, non-condensing	
Screen Display	4” TFT LCD 480x800 Pixels Display with Touchscreen	
Display Resolution	480 x 800	
Weight	0.81 Kg (1.8 lbs)	
Dimensions	229 x 89 x 81 mm (L x W x H)	
Color Evaluations	CIELabCh, CIELab, CIELCh, XYZ, Whiteness CIE, Whiteness E313, Yellowness E313, Reflectance, Measurement Parameters, CMC, CIE94, CIE2000, Hunterlab, 555 Sort Code, Metamerism DIN, Metamerism CIE, Whiteness Stensby, Whiteness Berger, Whiteness Hunter, Strength, Contrast Ratio, ISO/AATCC Fastness, ISO/AATCC Staining, FMC II, PQS II, PQS II GEE9F6, LRV Equation, Optical Density*	
Illuminants	A, C, D65, D50, D55, D75, F02, F07, F11, TL83, TL84, U3000, Horizon, U3500, LEDT8G, LED-B1, LED-B2, LED-B3, LED-B4, LED-B5, LED-BH1, LED-RGB1, LED-V1, LED-V2	
Result Display Items	Colorimetric Values / Pass-Fail Judgment / Color Difference Plot / Reflectance Curve / Captured Image	Colorimetric Values / Pass-Fail Judgment / Color Difference Plot
Data Storage	1000 standards, 5000 batches	
Languages	English, French, German, Spanish, Italian, Simplified Chinese, Korean, Portuguese, Polish	
Export Data Format	QTX, CSV, CXF, Excel	
Datacolor Software Compatibility	Tools, Match Station, Match Textiles, Match Pigment, Paint, Colibri	

Requirements

Electrical & Environmental Requirements	
Input Power Requirements	5VDC, 1.5 A
Battery	Rechargeable Battery Pack Li-Ion (RRC1130) 3.80V/ 3.81Ah/ 14.47Wh This is the only approved battery for this product.
Operating Environment	• Temperature: 5°C to 40°C • Maximum Relative Humidity: 20%-85% non-condensing • Altitude: Up to 2,000 meters • Do not store above 140°F (60°C) • Indoor Use • Do not crush, short circuit, mutilate, reverse polarity, disassemble, or dispose. In fire, it might cause burns or release toxic materials.

What's Included

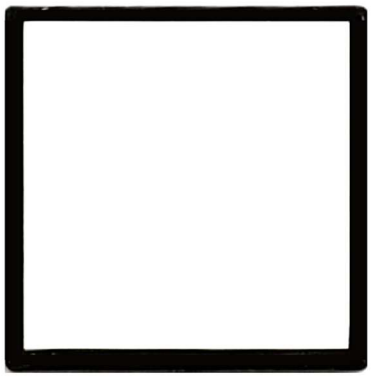
The following items are included with your purchase of our latest P-Series portable spectrophotometer.

Spectrophotometer (P300 or P200)
See Page 2 for Part Numbers

Carrying/Storage Case
Part # 037-500054

Calibration Stand with built-in Black Trap
Part #037-300003

White Tile (for instrument calibration)
Part #1045-0021



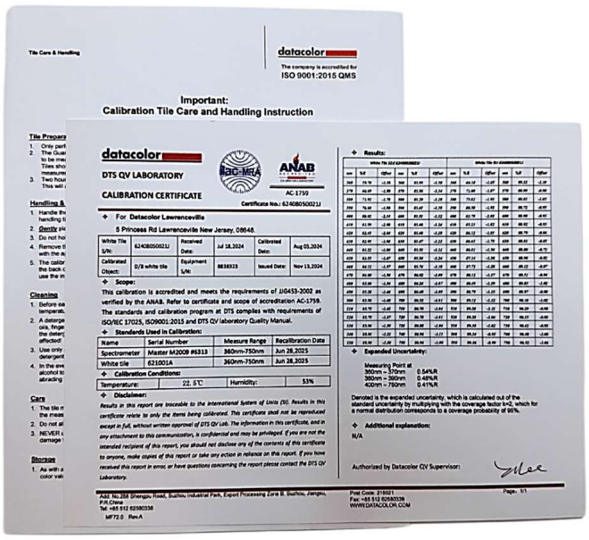
Green Tile (for optional diagnostic test) *Part #1200-1412* 	**White Fluorescent Tile (for UV calibration)** *Part #1200-1232* 
USB-C Cable (for charging & data transfer) *Part #037-400041* 	**USB Stick** *Part #022-600011* 

AC Adapter Plug
Part #037-500039

AC Adapter Clips
US Clip Part #037-500040
EU Clip Part #037-500056
China Clip Part #037-500057
UK Clip Part #037-500058
AUS Clip Part #037-500059

Wrist Strap *Part #037-400056*
Micro-fiber cloth *Part #10402-01*

Certificate of Instrument Performance
Part #MF202.0


Important:
Calibration Tile Care and Handling Instruction
datacolor
DTS QV LABORATORY
CALIBRATION CERTIFICATE
AC 1759
For Datacolor Lawrenceville
5 Princess Rd Lawrenceville New Jersey, 08648.
Scope:
Standards Used in Calibration:
Calibration Conditions:
Disclaimer:
Results:
Expanded Uncertainty:
Additional explanation:
N/A
Authorized by Datacolor QV Supervisor:

Optional Accessories

Spare Battery (Rechargeable Li-ion)
Part # 1035-0588

This item is readily available in most regions and can be purchased locally.
RRC1130 (Li-Po standard battery pack 3.80V / 3.81Ah / 14.47Wh)

Battery Charging Dock (Stand-alone)
Part # 1035-0587

This item is readily available in most regions and can be purchased locally.
RRC-SCC1130 (5.00W battery charger for RRC1130)

Glass Apertures (Coming Soon)
LAV : Part # 1035-0589
SAV : Part # 1035-0590
USAV : Part # 1035-0591

Coming Soon

Safety & Precautions

To ensure safe operation and optimal performance, follow these precautions. Failure to do so may result in injury, equipment damage, or reduced functionality.

General Safety Warnings

- Use only as specified by the manufacturer. Unauthorized modifications may impair safety.
- Operate within specified environmental conditions to prevent damage.
- Inspect the device before use; do not operate if damaged.
- Only trained personnel should perform maintenance or repairs.

Battery Safety

- Store between -20°C to 25°C; do not exceed 140°F (60°C) to prevent fire or explosion.
- Do not crush, puncture, short-circuit, reverse polarity, or disassemble.
- Use only the approved charger; avoid overcharging and monitor charging.
- When disposing, follow local e-waste regulations; do not incinerate.

Light Source Safety

- Avoid Direct Eye Exposure: Do not stare into the measurement port (aperture hole at the bottom side of the instrument) during operation.
- Use in Controlled Conditions: Keep away from reflective surfaces in hazardous environments.

Power Safety

- Always unplug before service and maintenance.
- Use the specified power adapter; avoid overloading circuits.
- Keep away from moisture and inspect power cords for damage.

Environmental & Operational Safety

- Follow recommended temperature and humidity guidelines.
- Avoid strong magnetic fields, dust, and impact damage.
- Transport in a protective case; do not drop or expose the device to extreme conditions.

Cleaning & Maintenance

- Always turn off before cleaning.
- Wipe with soft, dry cloth; avoid liquids and harsh chemicals.
- Use lint-free cloth and lens cleaner for the lens.
- Regularly clean the device and monitor the sphere from the aperture hole for any accumulated dust or wear.

Disposal & Recycling

- Follow E-Waste Regulations: Do not discard in regular trash.
- Recycle Batteries: Use designated recycling programs.
- No Incineration: Burning releases toxic chemicals.

Emergency & Fault Handling

- Overheating: Power off and cool before resuming.
- Unusual Odors or Noises: Disconnect and seek service.
- Malfunctions: Restart the device; if issues persist, contact support.

  Battery Issues: If the battery swells, leaks, or shows signs of damage, stop using it immediately and dispose of it properly.

For further assistance, contact our technical support.

Start Guide

Cable Installation

To ensure proper operation and power management, follow these instructions for connecting and charging your Datacolor P-Series instrument.

Connecting the Instrument via USB-C

The Datacolor P-Series instrument is equipped with a USB-C port located at the rear side of the device *(see the image below)*. This port serves as the primary interface for both power supply and data communication with a computer.

- Use the provided USB-C cable to connect the instrument to either a computer or an AC adapter plug for charging.
- The USB-C cable with an AC adapter included in the package is the only approved charging method for this instrument.
- Power is delivered to the back of the instrument through the USB-C connection.

Charging the Instrument

The instrument can be charged in two ways:

1. **Using the AC Adapter (Recommended for Optimal Charging Speed)**
   - Attach the AC adapter plug to the USB-C cable.
   - Insert the AC adapter into a standard electrical outlet.
   - Ensure that the instrument is placed in a stable position where the cable can be easily connected and disconnected when necessary.
2. **Using a computer or USB Power Source**
   - The instrument can be connected to a computer's USB port for charging.
   - When connected to a PC, charging will only pause momentarily during measurement intervals, which typically last a few seconds per measurement. The charging process will resume automatically after the measurement is completed.

Important Usage Notes

- Only use the provided USB-C cable and AC adapter plug for charging. Third-party cables and chargers are not approved and may affect performance or device safety.
- The wall charger (AC adapter plug) includes regional adapter clips that are compatible with Greater China, North America, South America, Europe, Australia, the Indian Subcontinent, and Southeast Asia. If you require additional adapters, contact Datacolor sales or technical support.
- Before first use, ensure the instrument is fully charged to maximize battery life and performance.

Device Startup

Normal Device Startup

To power on the Datacolor P-Series instrument, follow these steps:

The power button is positioned on the front top side of the instrument, directly below the screen and navigation buttons.

Powering On the Instrument (refer to image below)

1. Press the power button once.
2. The instrument screen will illuminate, displaying the initialization page.
3. Allow a few seconds for the system to fully load the main home screen.

Once the home screen appears, the instrument is ready for use. If the device does not turn on, ensure that the battery is sufficiently charged.

Initialization Screen Main Home Screen

First Time Device Startup

When powering on the Datacolor P-Series instrument for the first time after unboxing, additional initial setup steps are required before reaching the home screen. These steps ensure that the device is correctly configured and calibrated for optimal performance.

Additional Steps for First-Time Startup

After following the standard startup procedure, the device will prompt the user to complete two additional steps:

1. First Access Configuration
2. First Instrument Calibration

Step 1: First Access Configuration

Before reaching the home screen, the First Access Configuration screen will appear. The user must set and confirm the following instrument settings and preferences:

Instrument Settings:

- Date
- Time
- Language

Preferences:

- Standard & Batch Naming Settings
- Aperture Selection
- Number of Flashes per Measurement

Once all settings are configured, press the Confirm button at the bottom of the screen to proceed to instrument calibration.

Step 2: First Instrument Calibration

After confirming the initial settings, the device will prompt the user to perform an instrument calibration. Follow the steps outlined in the Instrument Calibration section to complete this process.

Note: The first-time calibration process is identical to the routine instrument calibration. It follows the same procedure as described in the Instrument Calibration section.

Make sure the instrument is at room temperature and humidity conditions are normal before calibrating the instrument.

Instrument Calibration

To maintain optimal performance and measurement accuracy, regular instrument calibration is required. By default, the instrument is set to require **calibration every eight hours**. However, users can modify this interval by navigating to:

Settings > Calibration Settings > Calibration Period

> **Note:** Increasing the calibration interval may lead to inaccurate measurements and data drift over time. It is recommended to follow the default calibration frequency for best results.

Before calibration, select the desired measurement conditions in the measurement settings.

Calibration Procedure

Step 1: Preparing the Calibration Stand

1. Retrieve the Calibration Stand with the built-in Black Trap (image on page 5).
2. Place the stand on a flat, stable surface to prevent movement during calibration.
3. Ensure the instrument is charged before beginning calibration.

Step 2: Black Trap Calibration (1/3)

1. Position the instrument on the Calibration Stand, ensuring:
   - The screen faces upward.
   - The aperture hole is aligned with the Black Trap hole on the stand. *(image on page 5)*
2. Navigate to the Calibration Screen on the device. *(see page 27 for calibration screens)*
3. Select 'Calibrate Instrument' to begin the calibration process.
4. The screen will display Step 1/3 – Black Trap Calibration.
5. Ensure proper alignment, then press 'Calibrate' to begin the measurement.
6. The device will display 'Calibration in Progress' while taking measurements.

Step 3: White Tile Calibration (2/3)

1. Once the Black Trap measurement is complete, the screen will prompt Step 2/3 – White Tile Calibration.
2. Remove the instrument from the calibration stand.
3. Place the White Tile onto the Tile Holder Section of the stand (refer to the image for correct placement).
4. Reposition the instrument onto the stand, ensuring:
   - The aperture lens is in direct contact with the White Tile (not the Black Trap hole).

7. Press 'Calibrate' to measure the White Tile. *(see page 27 for calibration screens)*

Step 4: Green Tile Calibration (3/3, Optional Diagnostic Test)

1. Upon successful White Tile calibration, the screen will prompt Step 3/3 – Green Tile Calibration.
2. Replace the White Tile with the Green Tile.
3. Reposition the instrument to ensure stable contact with the Green Tile.
4. Press 'Measure' to complete the final calibration step.
5. Once the measurement is complete, the system will display either:
   - Pass – Calibration successful.
   - Fail – The Green Tile measurement was not validated.

Important:

- Ensure all calibration standards (black/white/green) are clean and conditioned to room temperature. Do Not calibrate the instrument using contaminated or damaged standards.
- If the Green Tile test fails, you may retry the measurement by following the same steps.
- The instrument will still be fully calibrated even if the Green Tile test is unsuccessful.

Users can disable the Green Tile diagnostic test in the Calibration Settings, as it is optional. *(see page 35 for calibration settings)*

Calibration Status & Warnings

- Once calibration is successfully completed, the Calibration Indicator at the top of the instrument screen will turn GREEN.

- If calibration is required, the indicator will appear RED, signaling the need for recalibration. (Changing Aperture settings will require instrument re-calibration)

Important Calibration Notes:

- Changing aperture settings will require the instrument to be re-calibrated.
- Do not move or shake the instrument during calibration, as this can result in a corrupt measurement and require restarting the process from Step 1.
- Regular calibration ensures accurate color measurement and long-term instrument reliability.

Menu Navigation

Main Home Page

The main page of the portable instrument provides users with quick access to key functionalities, ensuring efficient navigation and usability. The following options are available:

Standard: Manage and configure quality control standards or create new ones.

QC Batch: Create, manage, and analyze QC batches, take measurements, create new batches, and use Auto-select functionality.

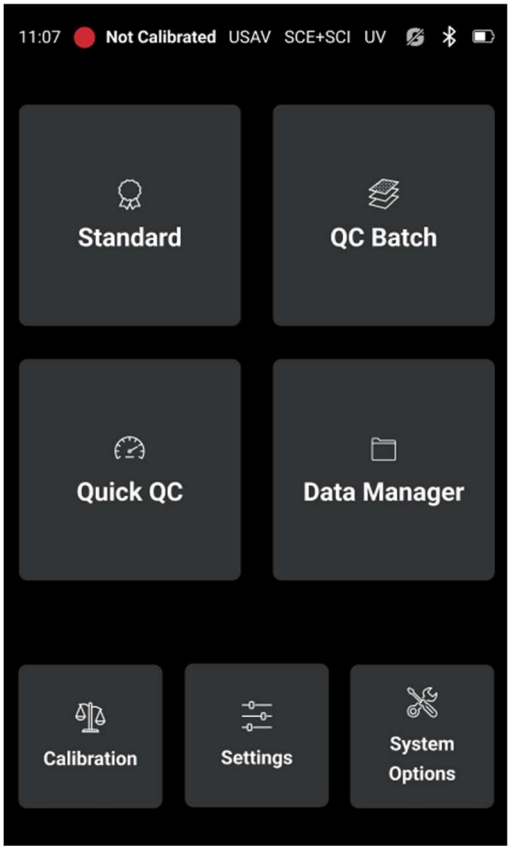
Quick QC: Perform rapid quality control checks for immediate assessment without storing measurements or data.

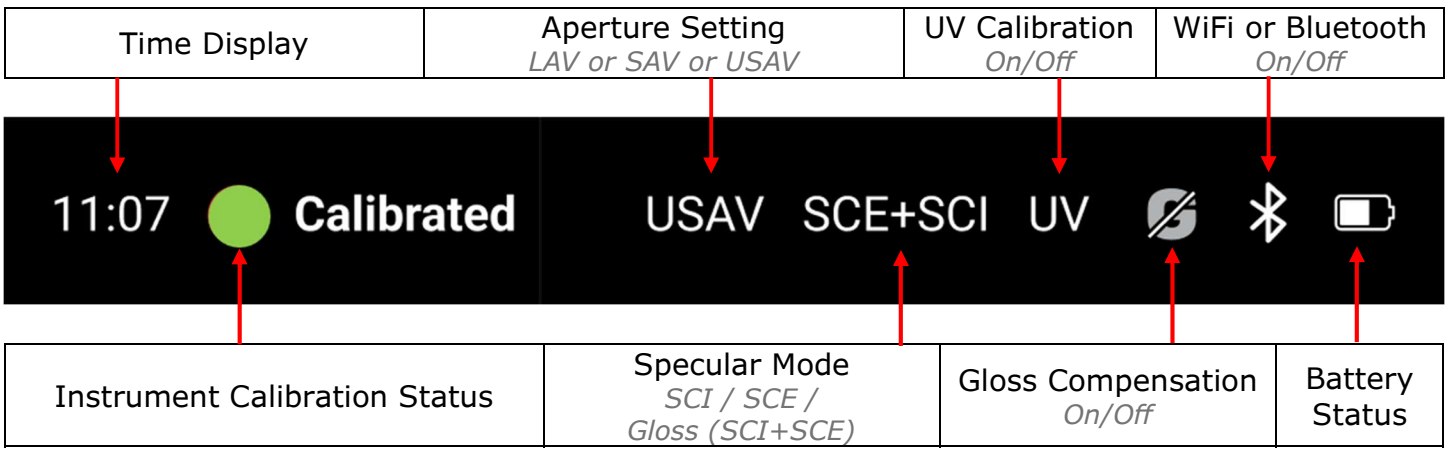
Data Manager: Manage stored batches, standards, and images, including editing or deleting records.

Calibration: Calibrate the instrument to maintain measurement accuracy and performance.

Settings: Configure measurement and colorimetric parameters such as tolerances, color equations, illuminants, gloss settings, calibration settings, data handling, plots, and image settings.

System Options: Manage Bluetooth (BT) and WiFi connections, set preferences like date, time, language, brightness, and sleep mode, and view system information such as software version, serial number, and battery status.

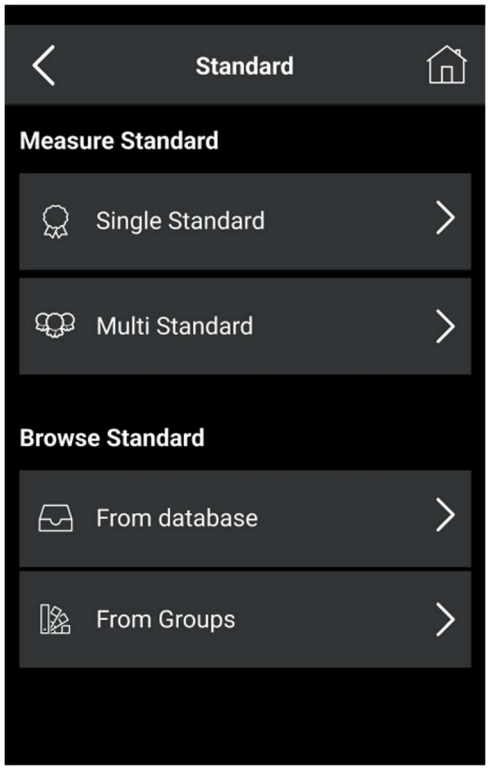




Standard

The Standard Screen provides users with four primary options to manage standards effectively:

1. Measure **Single Standard** – Create and measure an individual standard.
2. Measure **Multi Standard** – Create and measure multiple standards in a single session.
3. Browse Standard **from Database** – Search and access stored standards from the database.
4. Browse Standard **from Groups** – Search and access standards organized within groups.



Creating a New Standard

Users have two options for creating standards:

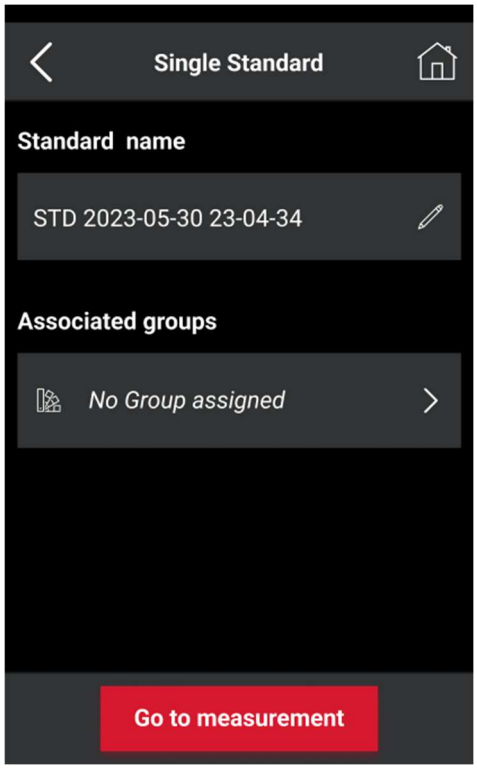
1. **Single Standard**: Create an individual standard.
2. **Multi Standard**: Create multiple standards in one session.

   After selecting an option, users proceed to the Standard Naming & Group Association screen.

Standard Naming & Group Association

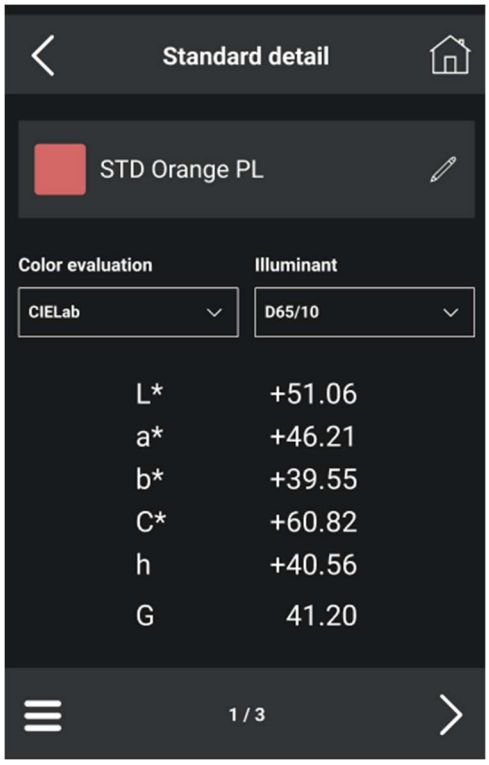
- If the auto-name setting is turned off, the user must manually enter a name for the standard. *(See Settings on page 35 for auto-name configuration settings)*
- The user can associate the standard with an existing group or create a new group.

Groups function as tags, allowing users to assign a standard to multiple categories without data duplication. This enables efficient organization and quick retrieval without consuming extra memory.



Taking a Measurement for a New Standard

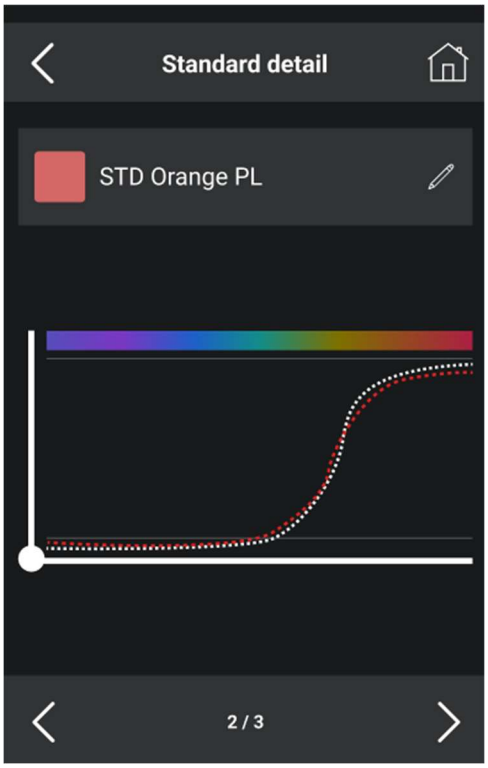
1. Press "Go to Measurement" – The instrument will switch to the camera screen for sample alignment.
2. Align the sample properly within the camera view to ensure accurate measurement.
3. Press "Measure" at the bottom of the screen.
4. The screen will display "Measurement in Progress" until the measurement is completed.
5. The user is then redirected to the Standard Details Page.



Viewing and Managing Standard Details

After a successful measurement, the Standard Details Page displays colorimetric values based on the user's selected settings.

- Users can change color evaluations and illuminants using the drop-down menus. Any selection updates the displayed results instantly.
- To access additional visual details, such as the reflectance curve and stored image, users can press the right arrow button at the bottom of the screen. *(Stored images can be disabled in Settings, see page 29)*
- Users can save, delete, or export the standard by pressing the menu icon (three-line bars) at the bottom left of the screen.



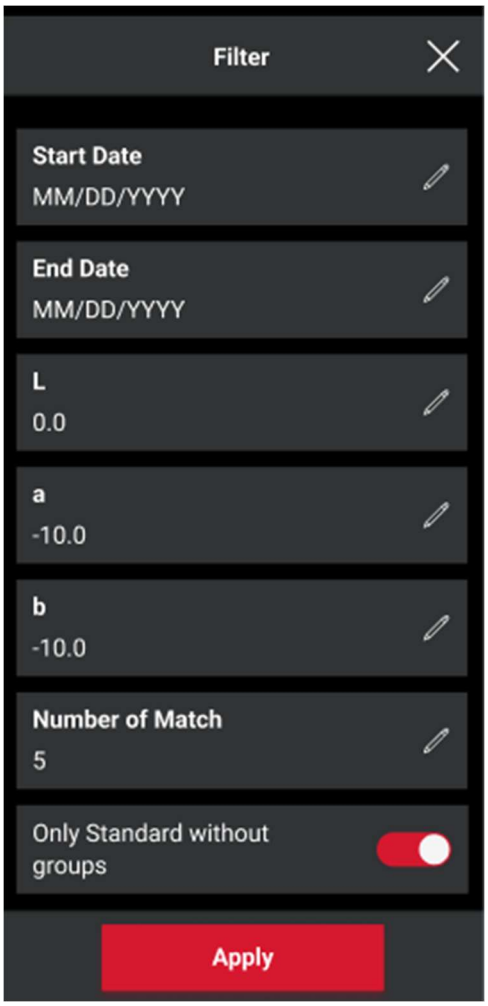
Browsing Standards

Users can browse stored standards using one of the following methods:

1. Browsing Standards from Database

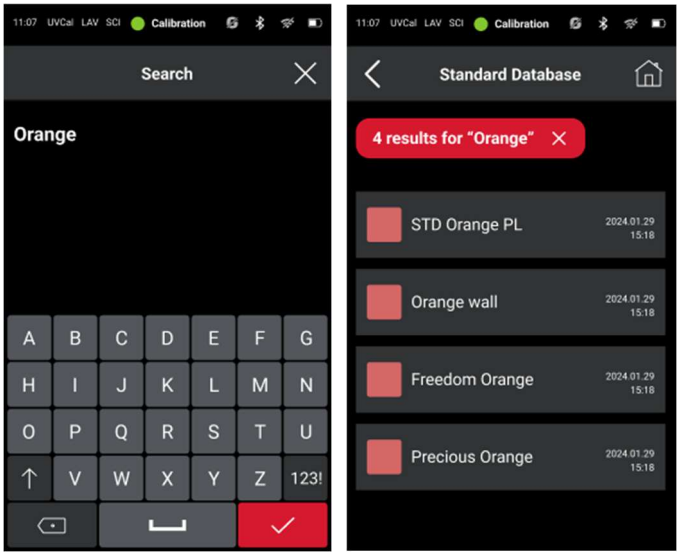
- Users can scroll through the complete list of stored standards.

- The sorting filters allow users to organize the standards by:
  - Date
  - LAB Values
  - Standard Name
  - Date of Last Editing
  - Date of Creation

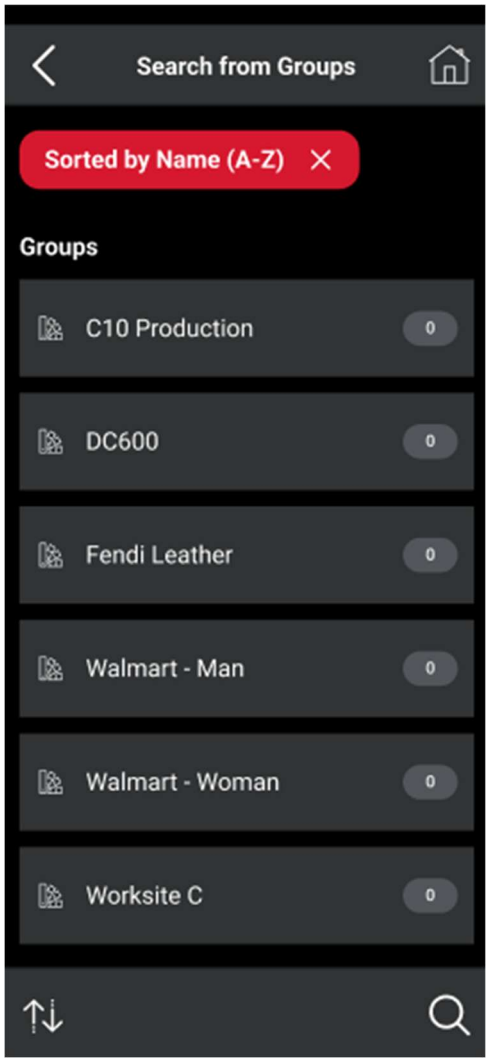


2. Browsing Standards from Groups

- Users can type and search for a group name in the search box to find the associated standards.



- Groups can be sorted similarly to database lists.

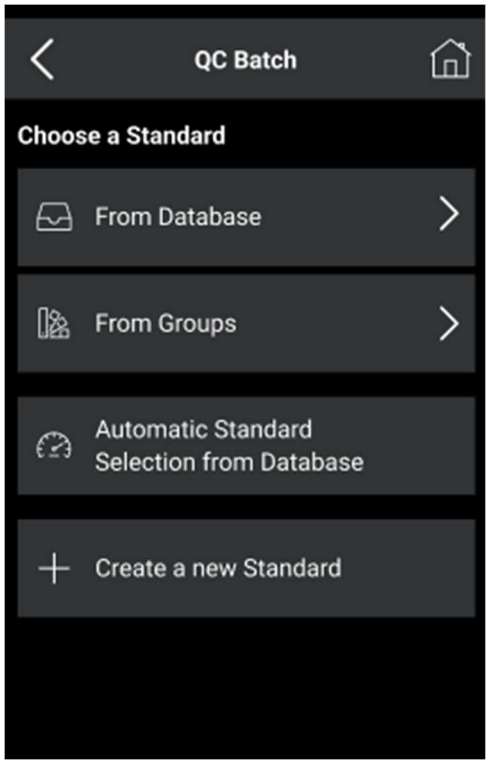


- Users can view standards within a selected group and see all batches associated with that standard.

  Once a standard is selected, users can view details, manage settings, and access related batches.

QC Batch

The QC Batch Screen is designed to facilitate batch measurement workflows, ensuring color consistency between a standard and its corresponding batch sample. Users must follow a structured process to measure samples within batches and compare them against pre-defined or newly created standards.



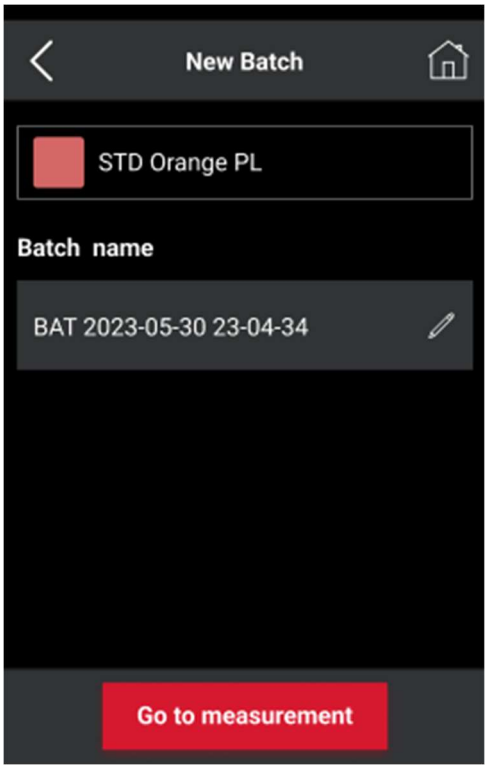
Workflow for QC Batch Measurement

1. **Select a Standard**
   - The workflow begins by selecting a standard to compare batch measurements against.
   - The user can choose a standard from the database or from an existing group.
2. **Automatic Standard Selection from Database (Optional)**
   - If the user is unsure which standard to select, they can enable Automatic Standard Selection.
   - This feature allows the instrument to analyze the batch measurement and suggest the closest matching standards from the database.
   - The user can set the limits for this search in the settings. *(see page 34 for Auto-select standard settings)*
   - This is especially useful in cases where manually searching for the correct standard is time-consuming or challenging.
3. **Create a New Standard (On-the-Fly Option) (Optional)**
   - If the user does not have a pre-measured standard, they can create a new one directly from the QC Batch Screen.
   - The process follows the same workflow as standard creation:
     - Enter the standard name (or use auto-name if enabled).
     - Assign the standard to a group (new or existing).
     - Measure the standard using the camera alignment and measurement process.
     - Save the new standard for future batch comparisons.

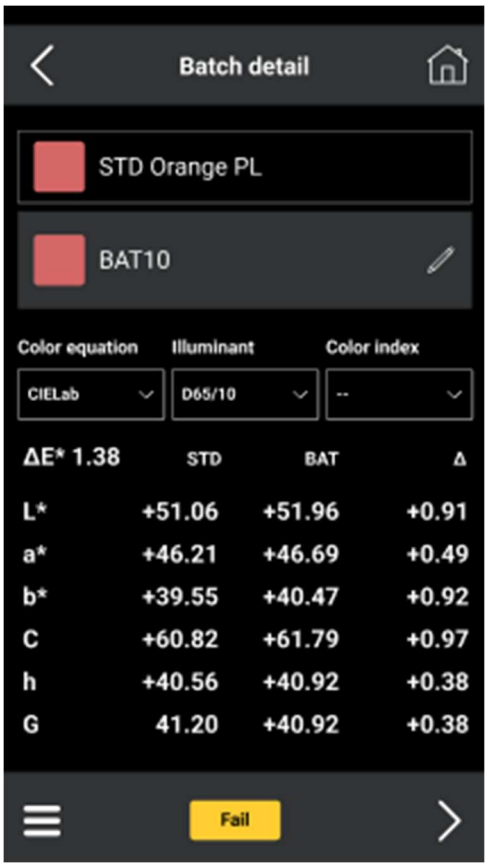
> **Note:** Do not move the instrument during the measurement. Move the instrument only after the screen stops displaying “Measurement in Progress”

4. Measure Batch Samples

- After selecting or creating a standard, the user proceeds to measure batch samples by first assigning the batch name (typing manually or auto-naming).

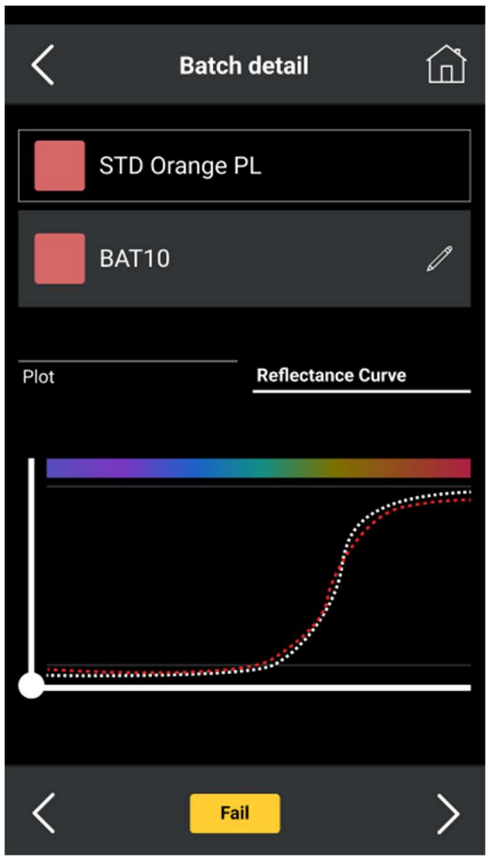


- Each batch measurement is compared against the selected standard, ensuring color consistency and quality control.
- The screen provides real-time feedback on the measurement, displaying:
  - Pass/Fail judgment
  - Colorimetric values



  - Color difference plots

  - Reflectance curves (only in P300)



- Camera Image (only in P300)

5. **Manage & Analyze Batch Data**
   - The user can review previous batch measurements, manage batch records, and export or save results.
   - The instrument provides options for:
     - Sorting and filtering batch data (e.g., by date, standard name, LAB values).
     - Viewing associated batch details within the selected group or database.

6. **System Tolerances & Color Equations** ***(Settings Required - See Page 29)***
   - Batch measurements are evaluated based on system-defined tolerances, which must be configured in the Settings Menu.
- The user must select appropriate color equations and illuminants to ensure the results meet their QC requirements.
   - These tolerances define acceptable deviations in color difference, reflectance values, and metamerism assessments.
   - The system applies the selected tolerances in real-time for each measurement.

7. **Batch Details**
   - The Batch Details screen allows the user to dynamically update color evaluations and illuminants, which immediately adjusts the measurement data, charts, and graphs.

Key Features of QC Batch Screen

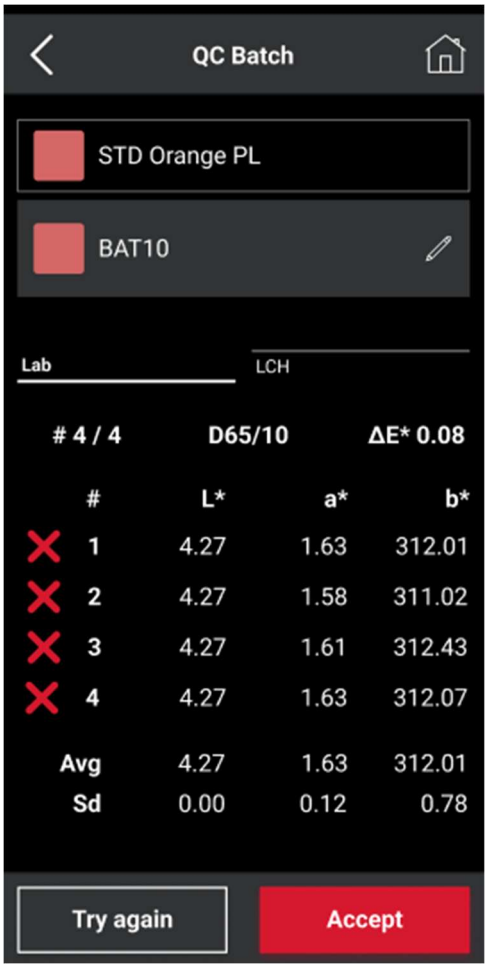
- **Multiple Standard Selection Options:** Choose from database, groups, or use automatic selection.
- **On-the-Fly Standard Creation:** Create a new standard if none exists.
- **Real-Time Measurement Feedback:** Instantly compare batch samples to standards.
- **Pass/Fail Judgment & Color Difference Analysis:** Quickly determine color consistency.
- **Batch Data Management:** Store, filter, and analyze batch history efficiently.
- **System Tolerances & Color Equations:** Configurable settings ensure proper QC evaluations.
- **Batch Detail Adjustments:** Change illuminants and color evaluations dynamically, with instant updates to results, graphs, and plots.

Average Measurement Option in QC Batch

To enhance measurement accuracy, users can enable the Average Measurement option in the Settings Menu. This feature allows multiple measurements of the same standard to be averaged, ensuring higher precision when measuring large batches of samples.

How the Average Measurement Work-flow Functions

1. **Enable Average Measurement in Settings** *(See Settings on Page 34)*
   - The user must first set the number of measurements to be averaged.
   - This ensures that the instrument captures multiple readings for improved accuracy.
2. **Batch Measurement Process with Averaging**
   - Once the average option is enabled and configured, the batch measurement workflow will prompt the user to take multiple measurements of the same sample.
   - After each measurement, the results are displayed in a list format for review.
3. **Interactive Measurement Management**
   - The system allows users to delete any unacceptable measurement before finalizing the batch.
   - If a measurement does not meet quality standards, the user can remove it from the list and continue taking new measurements.
   - The instrument ensures that all required measurements (as defined in settings) are completed before calculating the final average.
4. **Final Averaging & Storage**
   - Once the defined number of measurements is completed, the system calculates the average value.
   - The average result is stored as the new batch measurement, which can then be used for further comparisons and additional batch measurements.



Key Features of Average Measurement

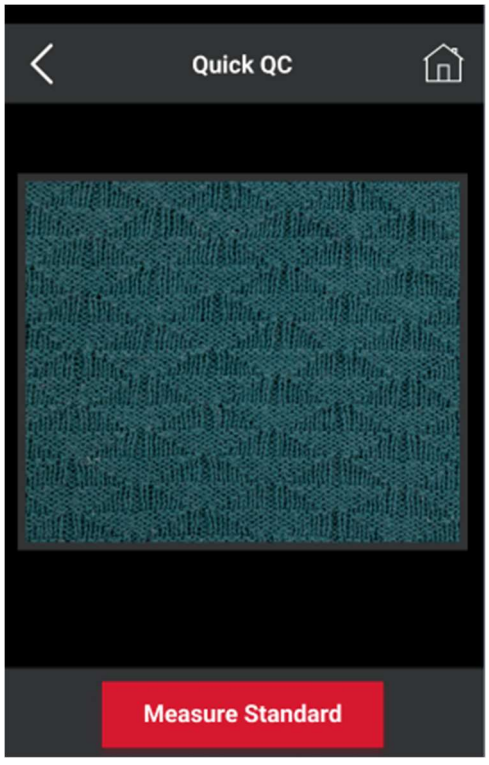
- **Higher Accuracy & Consistency**: Reduces variations in batch measurements.
- **User-Controlled Measurement Count**: Set the number of measurements for averaging.
- **Interactive Review & Deletion**: Users can remove individual readings before finalizing.
- **Real-Time List View**: Displays all measurements taken for easy comparison.
- **Automated Final Average Calculation**: Ensures only validated data is used in batch analysis.

Quick QC

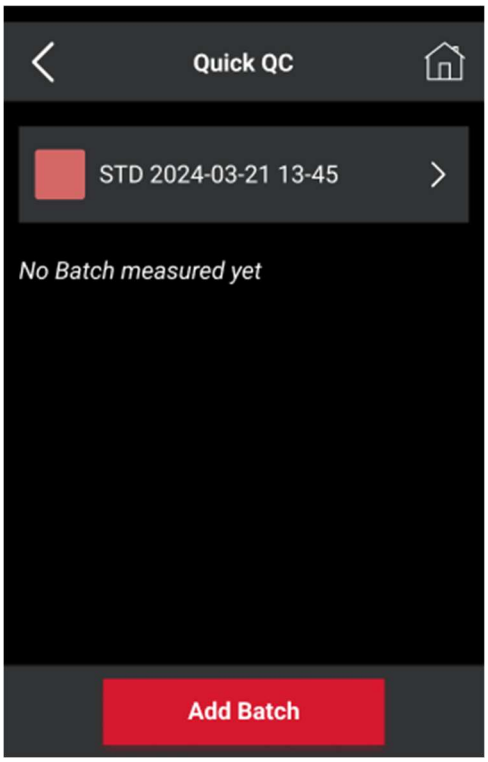
The Quick QC function is designed for fast measurements, color analysis, and instant pass/fail evaluation between two samples. It provides a streamlined workflow for users who need rapid assessments without extensive batch management.

Quick QC Workflow

1. **Measurement Process**
    - When the user selects Quick QC, the instrument immediately opens the camera screen for sample alignment.
    - The user is guided to take a measurement without additional configuration steps.



2. **Standard & Batch Assignment**
    - In Quick QC mode, the first measurement automatically becomes standard.
    - The next measurement is treated as the batch, and the system instantly compares them.

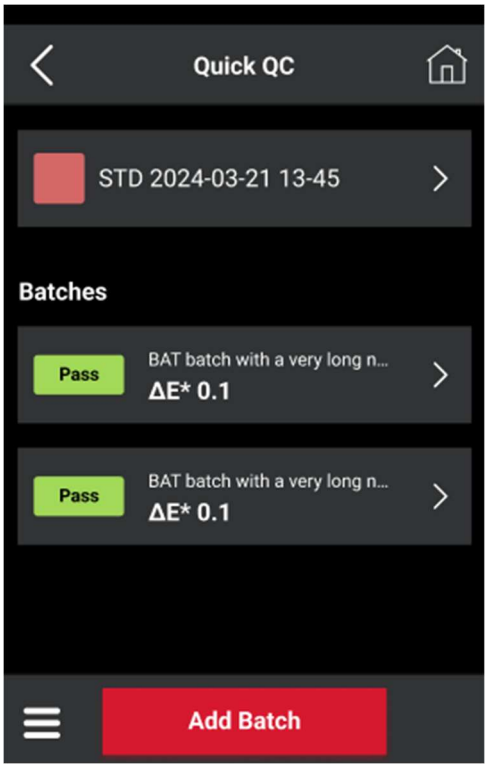


3. Pass/Fail Evaluation

- The instrument uses pre-configured device settings for color equations and tolerances *(see Settings on Page 29)*.
- The pass/fail result is displayed on the screen based on the predefined tolerances.
- The user can see batch details by clicking on the batch result tab.

4. Adding More Batches

- If the user wants to measure additional samples against the same standard, they can press “Add Batch” at the bottom of the screen.
- This allows multiple batch measurements without restarting the process.
- Batch details and evaluation follow the same structure as in the QC Batch workflow.

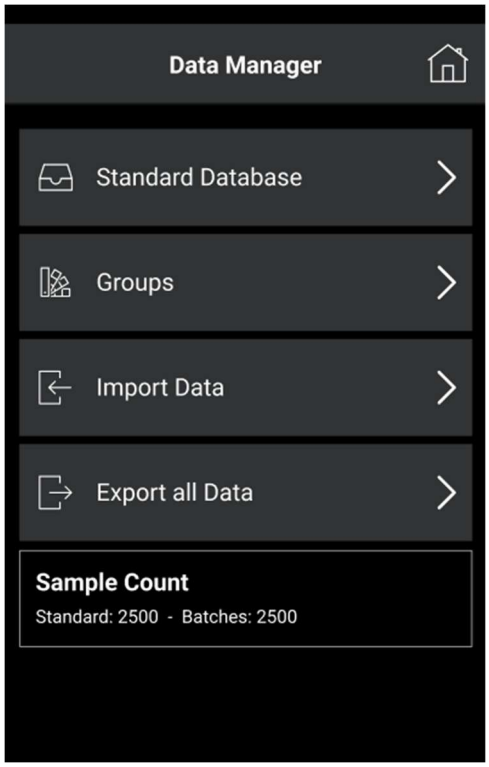


Key Features & Limitations of Quick QC

- **Fast & Simple** – Designed for quick quality control checks.
- **Automated Process** – No need to manually define standards.
- **Pass/Fail Judgment** – Uses existing settings for instant evaluation.
- **Batch Comparison** – Users can measure multiple samples against the first standard.
- **No Average Function** – Unlike QC Batch, averaging is not available in Quick QC mode.

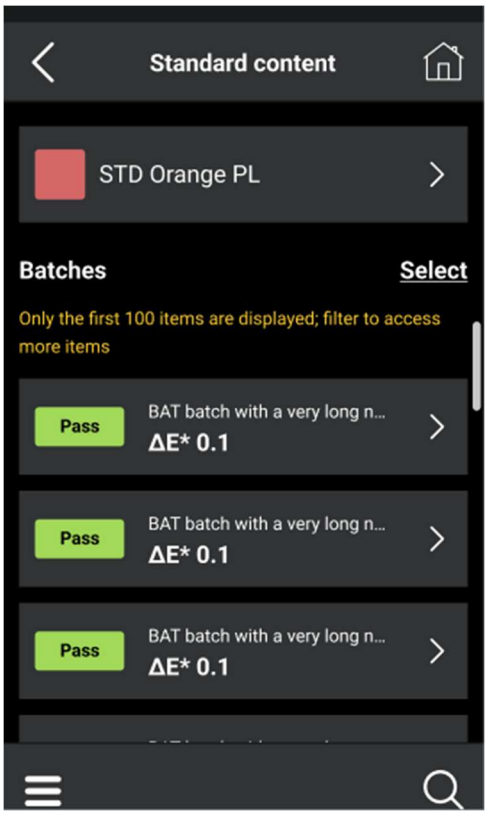
Data Management

The Data Manager function allows users to efficiently manage, import, and export data for standards, batches, and groups. It provides full control over organizing measurement data, ensuring easy access and management. It also provides information of samples stored on the device.

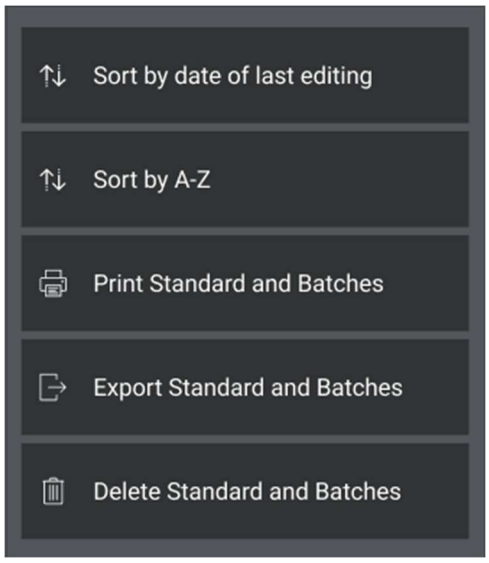


1. Standard Database

- Users can search for a standard from the database.
- After selecting a standard, users can view all associated batches.



- Possible Actions:
  - Sort by date or name
  - Print standard and batches
  - Export standard and batches
  - Delete standards (single or multiple) along with their batches.
  - Delete individual or multiple batches linked to a standard.
  - Delete all batches associated with a specific standard.



Standard Detail

- Users can view and manage all batches linked to a standard.
- Users can view:
  - Standard name and associated group.
  - Measurement values, graphs, and stored images.
  - Change viewing options for illuminants and color equations (via settings icon).
  - Print all data (except images).

2. Groups

- Displays all groups within the database, including settings and predefined groups.
- Possible Actions:
  - Find a group by searching its name or sorting through the list.
  - Access group details and content.
  - Create a new group and manage its settings.

Group Details

- Displays group name and content, divided into standards, batches, and images.
- Possible Actions:
  - Set the group as predefined.
  - Rename the group (using the rename icon at the bottom).
  - Delete the entire group (delete icon at the bottom).
- Users can:
  - View all standards within a selected group.
  - Select and delete one or multiple standards.
  - Search for specific standards using the search icon or filters (colorimetric search).

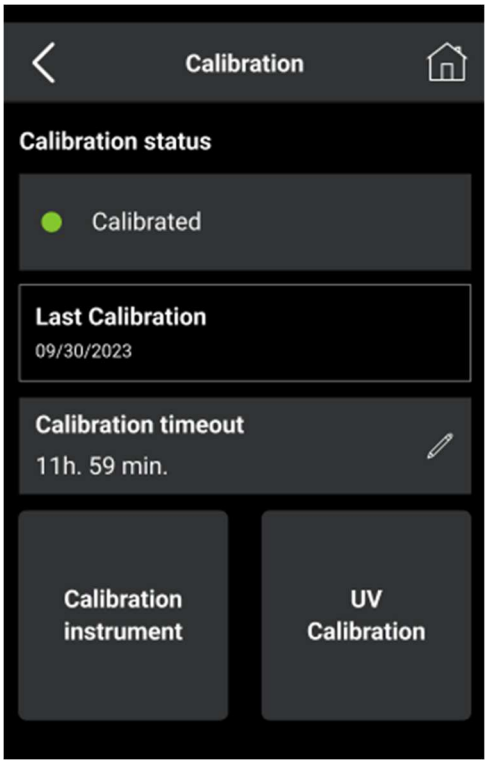
3. Data Import & Export

- Users can export data by connecting the device to a computer with Datacolor software installed.
- The system supports seamless data transfer, ensuring smooth integration with other analysis tools. (see Software & PC Connectivity on page 42)
- Data can be transferred via USB-C, Bluetooth (BT) or Wi-Fi (only on P300).

Calibration

The Calibration screen provides users with real-time calibration status, last calibration time, and the next required calibration timeout. It offers two distinct calibration options:

1. Standard Instrument Calibration – Uses Black Trap, White Tile, and an optional Green Tile.
2. UV Calibration (Available only for P300).

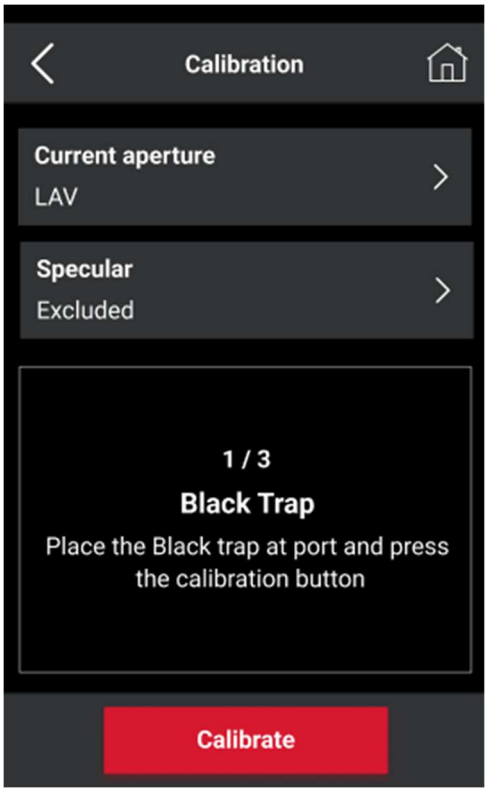


Instrument Calibration Process

When users select "Calibration Instrument", they are guided through a structured step-by-step workflow:

Step 1: Black Trap Calibration (1/3)

- Ensure the instrument is aligned on the black trap on the calibration base.
- Press "Calibrate", and the instrument will display "Calibration in Progress".

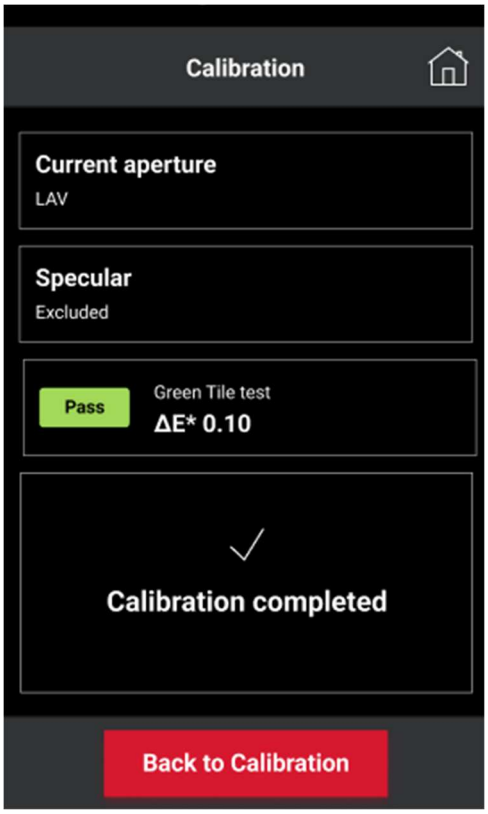


Step 2: White Tile Calibration (2/3)

- Align the instrument with the White Tile.
- Press "Calibrate" to proceed.

Step 3: Green Tile Calibration (3/3) (Optional)

- If Green Tile diagnostic test is enabled (can be turned off in Settings), the user follows the same process.
- If the Green Tile test fails, the instrument still completes calibration, but users must press "Back to Calibration" and retry the Green Tile measurement.
- If the test fails repeatedly, users should contact Datacolor Support.

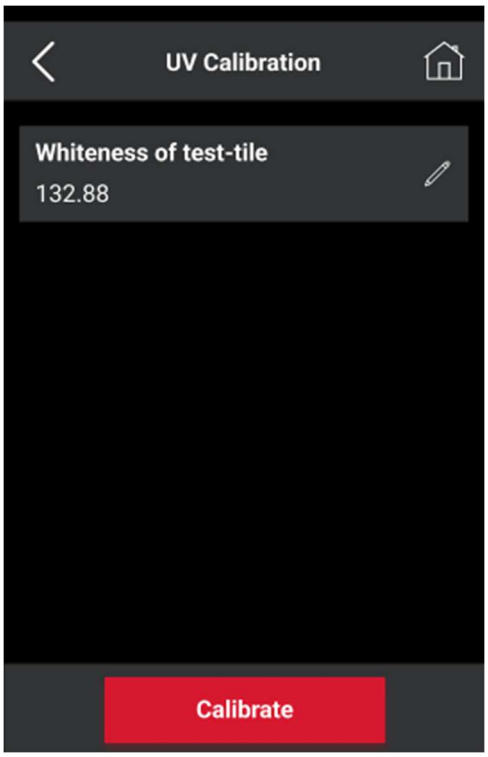


UV Calibration (P300 Only)

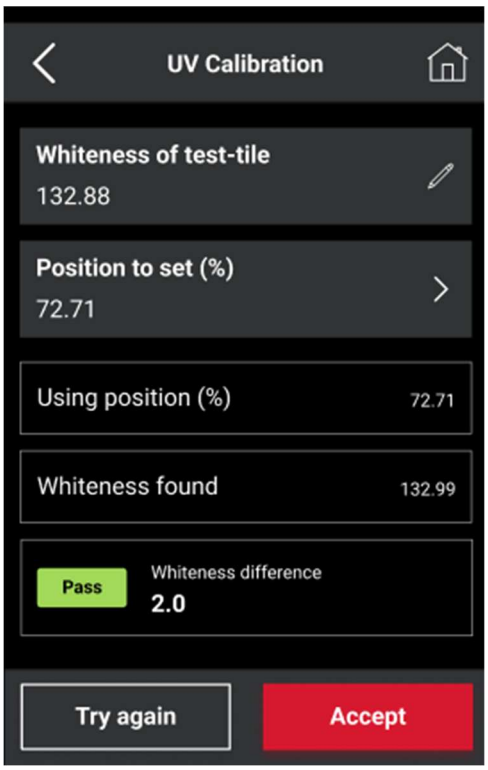
- The first screen displays the Whiteness Value of the UV Test Tile.
- Users manually enter the whiteness value.
- Ensure the instrument is aligned on the UV Test Tile, then press "Calibrate".

Note: If the instrument is not calibrated, UV Calibration cannot be performed.

- The UV Calibration button will remain disabled until standard calibration is completed.



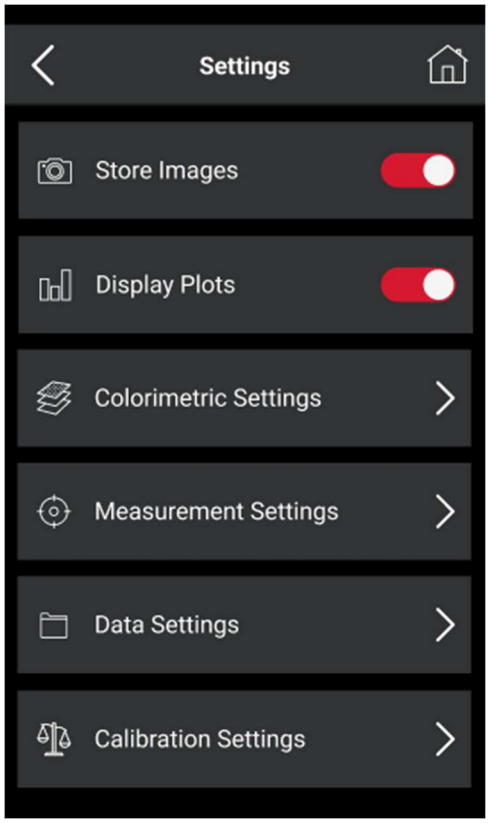
- The system displays "UV Calibration in Progress", followed by a Pass/Fail result.
- Users can set "Position to Set" in percentage values for fine adjustments.



Settings Overview

The Settings menu provides users with full control over measurement configurations, data management, and calibration preferences. The settings are categorized into six main sections:

- Store Images
- Display Plots
- Colorimetric Settings
- Measurement Settings
- Data Settings
- Calibration Settings.

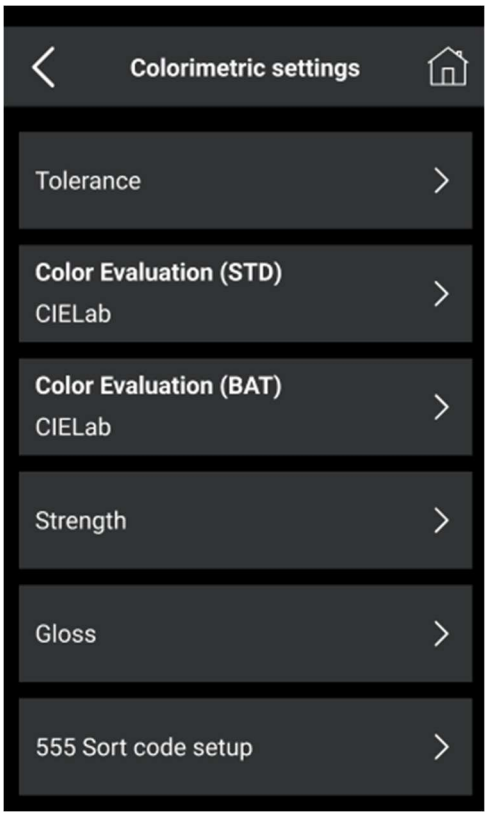


Store Images & Display Plots

- **Store Images** – Allows users to enable or disable image storage for each measurement. (only in P300)
- **Display Plots** – Toggles the visibility of color difference plots (both P200 & P300) and reflectance curves (only in P300) in measurement results. If enabled, plots will appear in batch details after measurement.

Colorimetric Settings

This section includes options related to color evaluations, tolerances, and gloss settings:

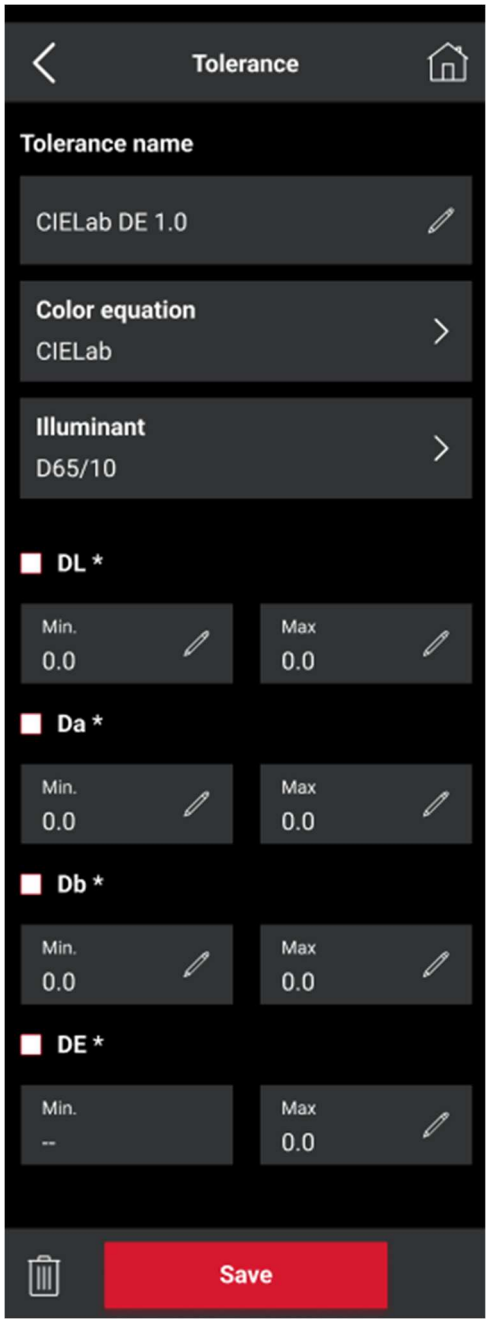


The system tolerance in P200 and P300 consists of multiple tolerance blocks, each defining a specific requirement for pass/fail evaluation. Users can combine multiple tolerance blocks for more precise evaluations. For example, a tolerance may include both color difference limits and gloss limits, requiring batches to meet both criteria to pass.

- **Tolerance Settings**
  - Users can enable or disable tolerance evaluation.
  - Users can assign a name for tolerance, select color equations, illuminants and set

values for DL, Da, Db, DE, and other relevant parameters based on the selected equation.

- These settings will be used to evaluate Pass/Fail during QC Batch and Quick QC measurements.

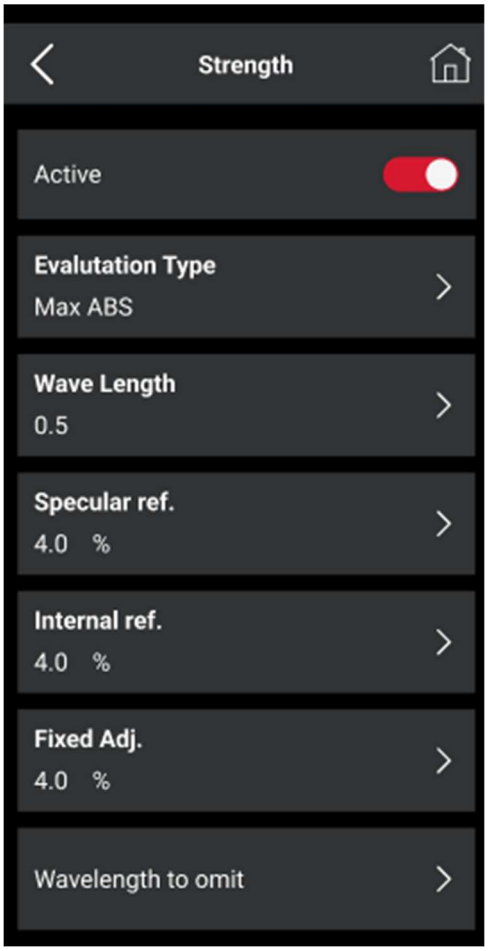


- **Strength Measurement**

  This section allows users to enable or disable Strength Measurement.

  In this screen:

  - Strength can be enabled or disabled.
  - Users can select Evaluation Type, Wavelength, Specular Reference, Internal Reference, Fixed Adjacent Percentage, and Wavelength to Omit.



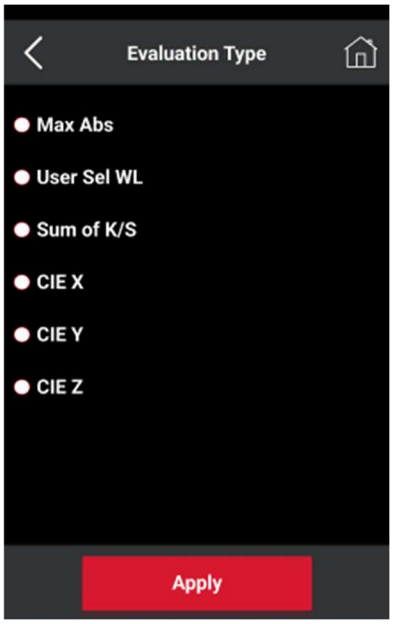
Strength evaluation allows users to determine if a batch of colorants is stronger or weaker than the reference material. It also calculates the color difference when both batches are adjusted to equal strength, helping manufacturers optimize formulation adjustments.

The user can configure Strength parameters for precise color and material analysis. These options allow users to fine-tune how the instrument measures color strength, which is critical in industries like paints, coatings, textiles, and plastics, where precise color control is necessary.

1. Evaluation Type

Users can select the method used to calculate the strength of a color. The available options include:

- **Max Abs (Maximum Absorbance)** – The instrument identifies the wavelength at which the sample exhibits the highest absorbance and uses that for strength calculation.
- **User Sel WL (User Selected Wavelength)** – Users manually specify a wavelength for strength measurement instead of relying on an automatic selection.
- **Sum of K/S (Kubelka-Munk Theory for Strength Calculation)** – This method sums up the K/S (absorption and scattering coefficients) over the spectrum to determine strength.
- **CIE X, CIE Y, CIE Z** – These options calculate strength based on the CIE tristimulus values (X, Y, and Z), which represent how the human eye perceives color under a given illuminant.



2. Wavelength Selection

- This allows users to specify a particular wavelength range at which the strength measurement is taken.
- This is important because different colorants absorb and reflect light at different wavelengths. Selecting the appropriate range ensures accurate measurement.

3. Specular Reference

- Specular reference determines whether the specular component (surface reflection) is included in the strength measurement.
- Users can select SCI (Specular Included) or SCE (Specular Excluded) to determine if gloss should influence the measurement.

4. Internal Reference

- This option allows users to define an internal reference standard against which the measured strength is compared.
- Useful in cases where users want to compare samples against a preset reference instead of an external standard.

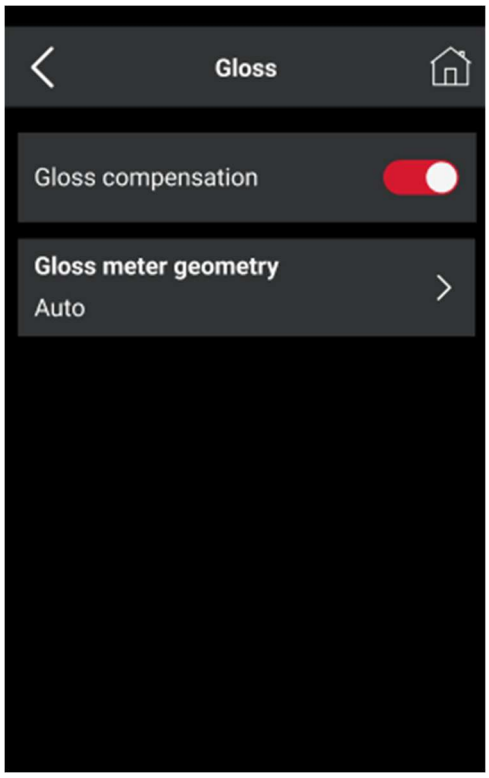
5. Fixed Adjacent Percentage

- This setting helps define how much influence an adjacent color area has when measuring strength.
- It ensures that measurements are stable even if minor fluctuations occur in the sample.

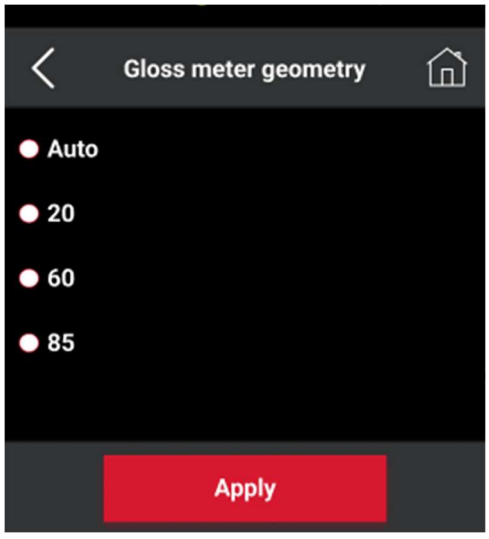
6. Wavelength to Omit

- Users can exclude specific wavelengths from calculations.
- This is useful when certain wavelengths contain noise or are not relevant to the strength measurement.
- For example, if a material has interference in a certain spectral region (e.g., 400-450 nm), users can omit it to avoid skewing results.

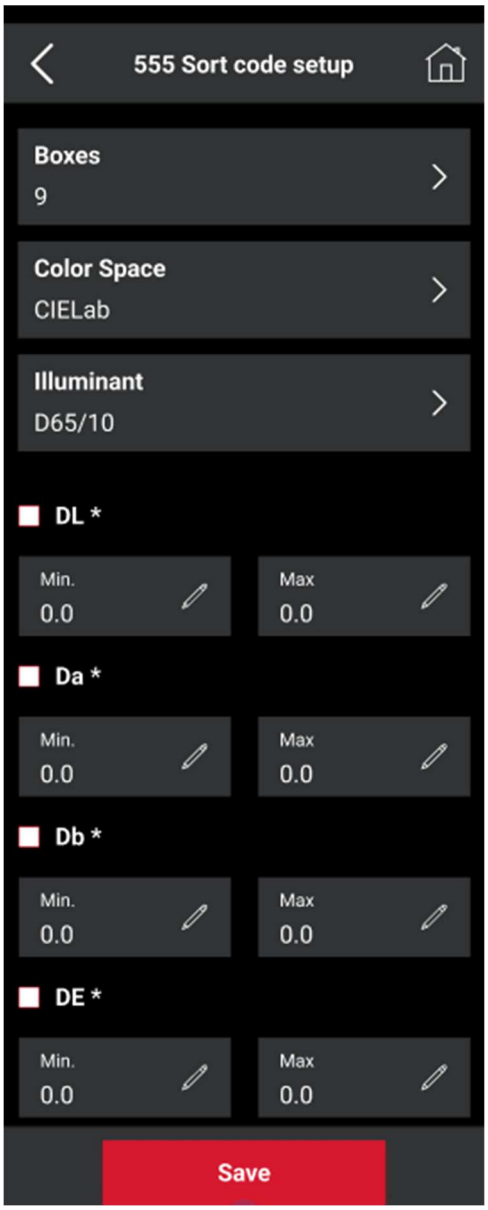
- **Gloss Settings**
  - Enables or disables Gloss Compensation.



- If turned off, the instrument will still be able to take SCI and SCE measurements but will not calculate and display gloss. Gloss compensation is not available in P200.
- Users can choose Gloss Meter Geometry from Auto, 20°, 60°, or 85° Gloss.

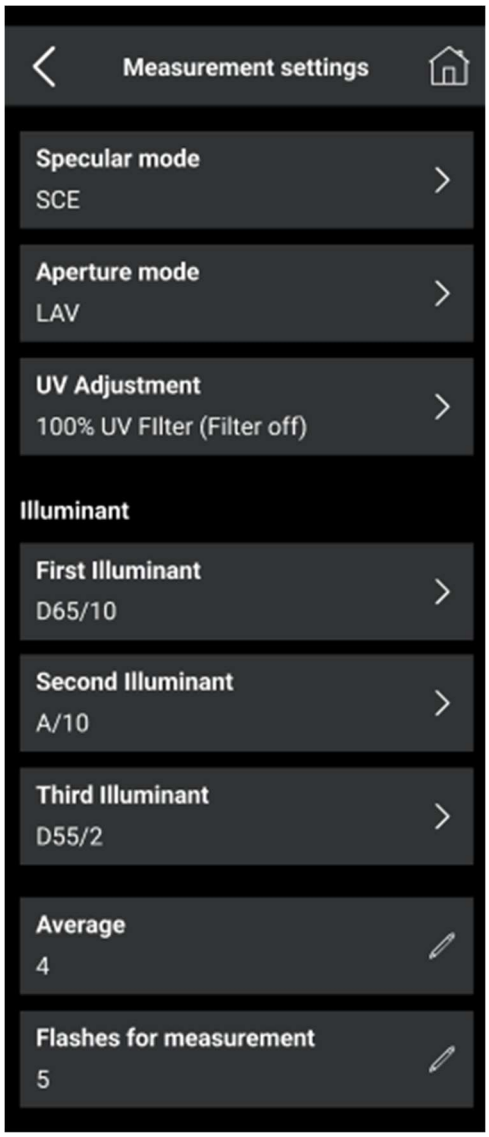


- **555 Sort Code Setup**
  - Users can define the number of boxes (3, 5, 7, or 9).
  - Allows configuration of Color Space, Illuminant, and Tolerance Settings.

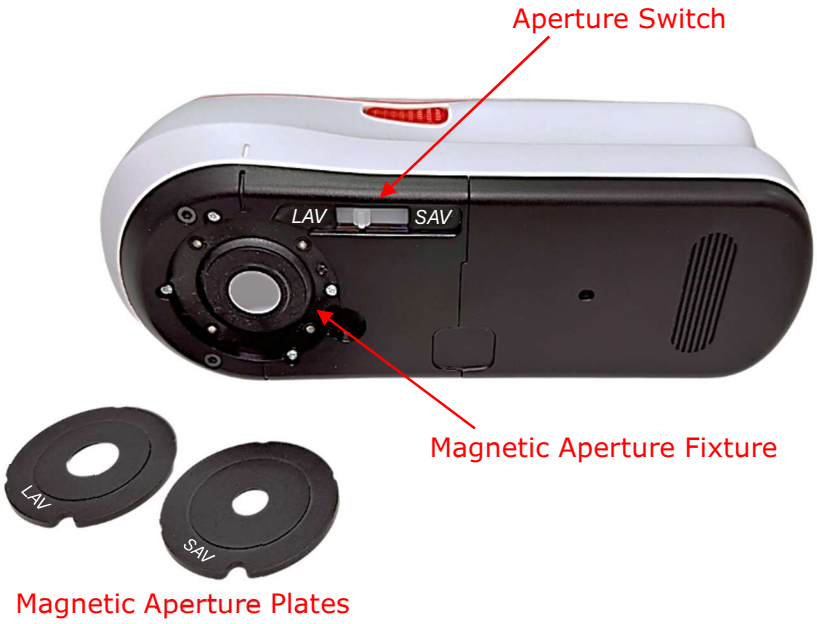


The 5-5-5 shade sorting option is used to classify batches based on similar colorimetric properties (e.g., lighter, darker, or redder than the standard). This ensures color consistency in industries where multiple batches are used together in production.
Note: Shade sorting does not determine pass or fail status. It is applied only to batches that have already met acceptability tolerances, providing an additional layer of quality control.

This section configures the measurement behavior of the instrument.



2. Move the aperture switch to the selected aperture settings (as labelled)
3. Select the accurate aperture mode and click apply.



Note: If the user selects the aperture mode that doesn't match with the aperture switch setting at the bottom of the device or with the aperture plate mounted on the device, a warning error will appear on the screen.

- **Specular Mode**
  - Users can select Specular Included (SCI), Specular Excluded (SCE), or SCI & SCE Combined.
- **Aperture Mode**
  - Users can select the measurement aperture: LAV, SAV, or USAV. (only in P300)
  - Ensure the aperture mode matches with aperture switch setting and aperture plate.

The following steps are required to properly change the aperture settings in P300 unit.

1. Change the magnetic aperture plate at the flat-bottom side of the instrument.

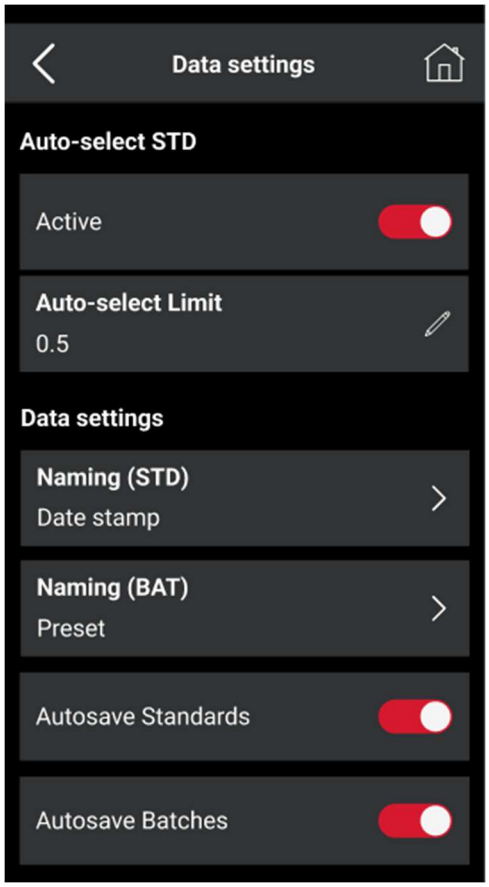
- **UV Adjustment**
  - Allows users to configure UV settings, including selecting 100%, 0%, or custom adjustment.
- **Illuminant Selection**
  - Users can choose from multiple illuminants to match industry-specific conditions.
  - Users can select up to three different illuminants at a time.
- **Average Setting**
  - Users can enable or disable the averaging function.

- If enabled, a pop-up appears allowing the user to select an average value between 1 and 50.
- The instrument will then require the user to take multiple measurements for each standard or batch before finalizing the stored value. *(see page 22 for details)*

- **Flash Settings**
  - Users can adjust the number of flashes per measurement.
  - Higher flashes increase accuracy but also extend measurement time.

Data Settings

This section manages data storage, naming conventions, and auto-save preferences.



- **Auto-Select Standard**
  - Enables automatic standard selection for batch measurements.

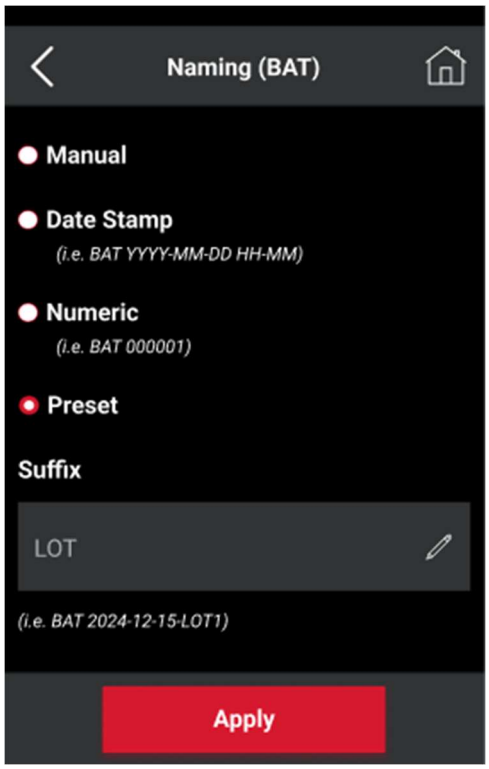
Users can enable or disable this feature. When Auto-Select Standard is turned on, an additional setting appears:

- **Auto-Select Limit** – This allows the user to define the delta E threshold for automatically finding the closest matching standards.

Functionality of Auto-Select in QC Batch Workflow:

- When performing Batch QC, if the user cannot locate a standard manually from the Database or Groups, they can select Auto-Select Standard.
- If this feature is enabled in Settings, selecting it in QC Batch will automatically take the user to measurement screen.
- The instrument then searches the stored standards and lists those that fall within the delta E limit defined in the settings above (Auto-Select Limit).
- The user can choose from this list, ensuring an efficient and precise standard selection.

- **Naming Conventions**
  - For standards and batches, users can select from:
    - Manual Entry
    - Date Stamp
    - Numeric Sequence (automatically assigns sequential names)
  - Users can also set a custom preset for Batches, which is added to all automatically named batches.

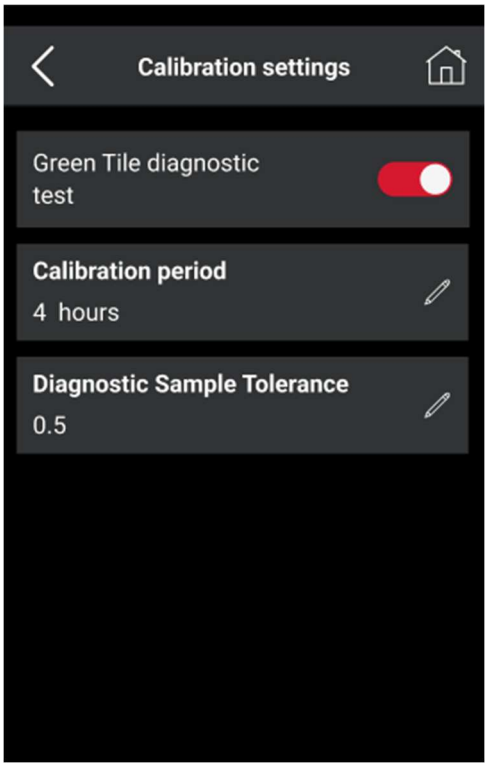


- **Auto-Save Settings**
  - Users can enable or disable:
- Auto-Save for Standards – Automatically saves measured standards.
- Auto-Save for Batches – Automatically saves batch measurements.

Calibration Settings

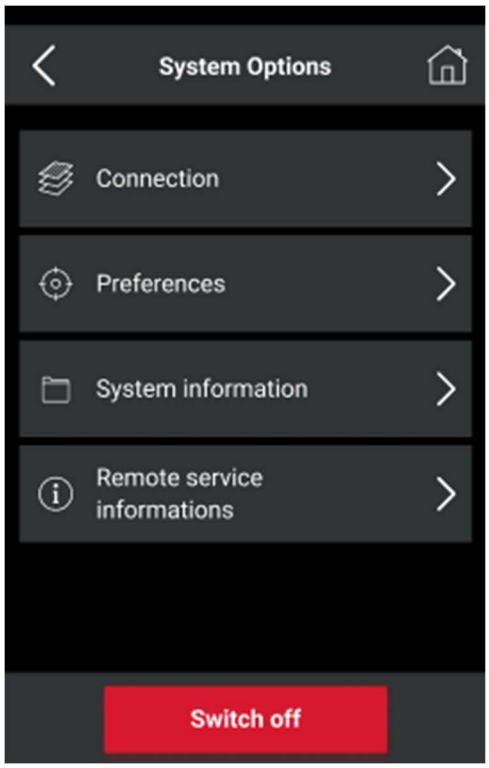
This section controls calibration workflows and diagnostics.

- **Green Tile Diagnostic Test**
  - Can be enabled or disabled.
  - If enabled, the instrument performs an additional diagnostic step during calibration.
- **Calibration Period**
  - Users can set a time period for mandatory recalibration.
- **Tolerance for Diagnostic Samples**
  - Users can configure acceptable tolerance values for diagnostic verification.



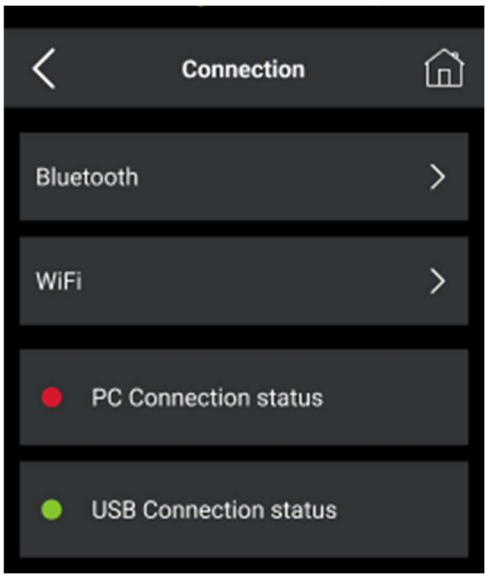
System Options

The System Options menu provides users with various settings and status indicators to configure device connectivity, system preferences, and review system information. This menu ensures users have full control over connectivity, device preferences, and system diagnostics, helping them maintain optimized performance and troubleshoot issues efficiently.

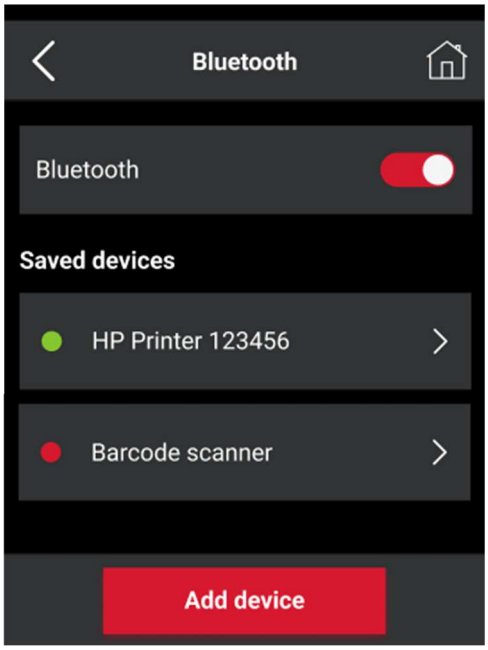


1. Connection

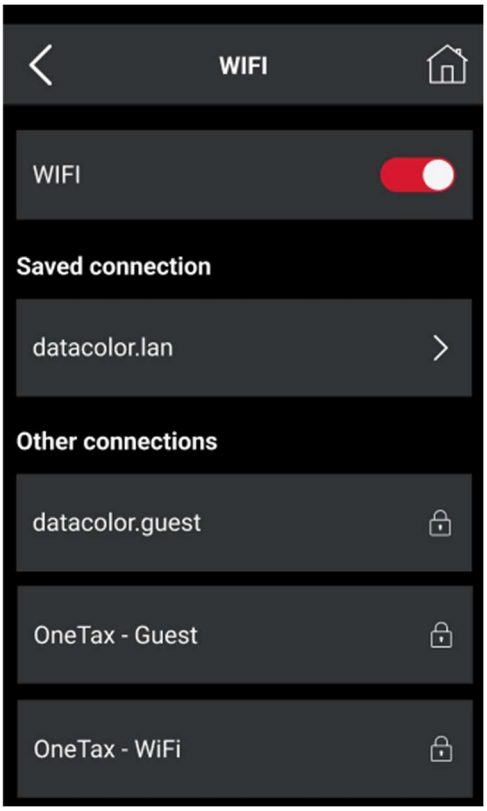
This section allows users to configure communication options for the device.



- **Bluetooth (BT) Settings**
  - Enable or disable Bluetooth connectivity.
  - Scan and pair with nearby Bluetooth-enabled devices for wireless data transfer.
  - View and manage paired devices.

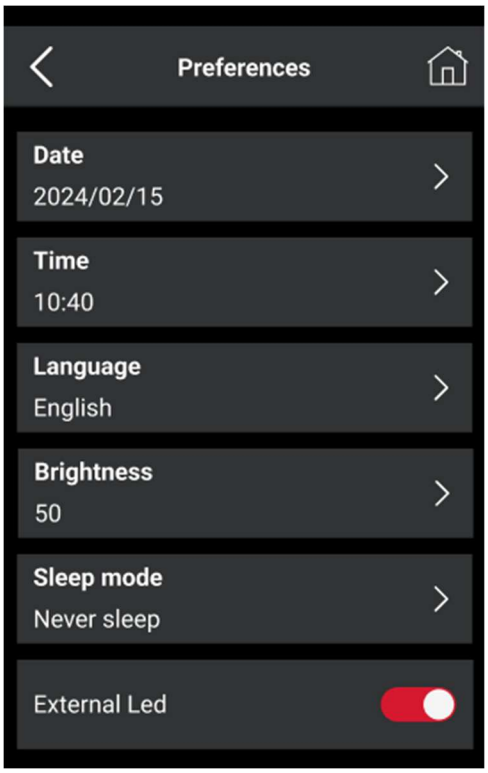


- **Wi-Fi Settings**
  - Enable or disable Wi-Fi connectivity.
  - Scan for available networks and connect to a preferred one.
  - Enter network credentials for secure access.
  - View network status, including signal strength and connection details.
  - Enable remote access for future software updates and fleet management.



2. System Preferences

Users can personalize the instrument settings according to their workflow.



- **Date & Time Settings**
  - Set the system date and time manually using the displayed number pad.
- **Language Selection**
  - Choose from multiple language options for the device interface. (except keyboard)
  - Languages include English, French, German, Spanish, Italian, Chinese, Korean, Portuguese, and Polish.
- **Brightness Adjustment**
  - Adjust screen brightness to optimize visibility under different lighting conditions.
- **Sleep Mode & Power Management**
  - Configure the auto-sleep timer to conserve battery life.
  - Set inactivity duration before the screen dims or the device powers off automatically. (5 minutes or 15 minutes options only)

3. System Information

Users can access essential device details and status indicators like application and software versions, device serial number and model number, Bluetooth and Communication port identities, and information on battery status and sphere geometry.

Besides displaying status and information, this screen also allows the user to take the following actions:

- Expose SD Card is used to access data on the instrument. (see pg. 47 for more information)
- Update System (for standalone software update. Only use under Datacolor support guidance)
- Restart System (for rebooting the instrument)

Note: When troubleshooting a problem, you may need to provide specific information regarding the software installed on the unit, the serial number and other technical details. In some cases, you will need to restart the system under the direction of Datacolor support personnel.

Understanding Color Differences

The Datacolor P-Series (P200 & P300) provides several methods for calculating color differences. The choice of which equation to use depends on various factors, such as customer requirements, industry standards, and the historical data associated with a specific color. While Datacolor does not dictate which equation users should adopt, this section aims to explain the available color difference models and how to interpret their results.

Fundamentals of Color Difference Equations

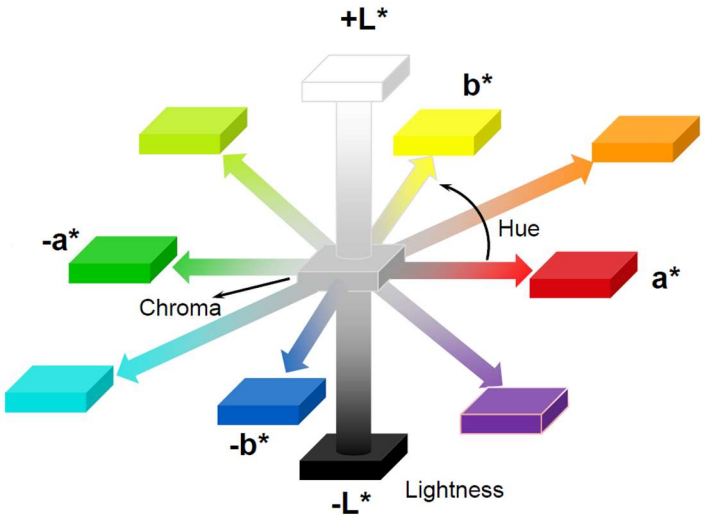
All color difference equations operate by measuring deviations between a standard (reference color) and a batch (sample being evaluated). These deviations are calculated in three-dimensional color space, but the exact dimensions used vary by equation.

Most color difference equations define color differences along the following axes:

- Red-Green Axis – Indicates whether a batch is redder or greener than the standard.
- Yellow-Blue Axis – Indicates whether a batch is yellower or bluer than the standard.
- Lightness-Darkness Axis – Represents the relative brightness or darkness of the batch compared to the standard.

Other equations use an alternative method that defines the three dimensions as:

- Hue (H) – The shift in color shade from one color to another (e.g., from red to orange).
- Chroma (C) – The intensity or saturation of the color (i.e., how vivid or dull it appears).
- Lightness (L) – The relative brightness of the color compared to a neutral gray.



Regardless of the equation, all models include ΔE (DE) value, which represents the overall difference between the batch and the standard. ΔE is always a positive number, as it measures the magnitude of the difference, not its direction.

Interpreting Color Difference Values

The results of color difference calculations are presented as positive or negative values depending on the direction of the deviation:

- Positive (+) values indicate that the batch is higher than the standard in that dimension (e.g., redder, yellower, or lighter).

- Negative (-) values indicate that the batch is lower than the standard (e.g., greener, bluer, or darker).
- ΔE (DE) values are always positive and represent the total color difference magnitude between the standard and batch.

The following table outlines the primary color difference equations used in the P-Series spectrophotometers and explains how they calculate differences.

Comparison of Color Difference Equations

Equation	Color Space Model	Red-Green Difference	Yellow-Blue Difference	Lightness Difference	Other Differences	Overall Color Difference
CIEL*ab**	Based on CIE L*ab** model	Δa* + = redder - = greener	Δb* + = yellower - = bluer	ΔL* + = lighter - = darker	ΔC* (chroma deviation) ΔH* (hue shift)	ΔE* (Total Color Difference)
CIEL*C*H*	Based on CIE L*ab** model	Not used	Not used	ΔL* + = lighter - = darker	ΔC (chroma) & ΔH (hue shift)	ΔE
CMC	Based on CIE L*ab** model	Not used	Not used	ΔL + = lighter - = darker	C (chroma shift) & H (hue shift)	ΔE
CIE2000	Based on CIE L*ab** model	Not used	Not used	ΔL + = lighter - = darker	C (chroma shift) & H (hue shift)	ΔE
Hunter Lab	Uses a transformation of the CIE chromaticity diagram	Δa + = redder - = greener	Δb + = yellower - = bluer	ΔL + = lighter - = darker	No additional calculations	ΔE
FMCII	Based on a transformation of the CIE chromaticity diagram	ΔCRG + = redder - = greener	ΔCYB + = yellower - = bluer	ΔL + = lighter - = darker	ΔC	ΔE

Comparing Results from Different Equations

Each color difference equation calculates values slightly differently, even for the same color samples. Below is an example demonstrating how the same standard and batch measurements yield slightly different results using CIEL*ab** and Hunter Lab equations.

CIEL*ab** Results:

Component	Value	Interpretation
ΔL*	+1.32	Batch is lighter than standard
Δa*	+0.42	Batch is redder (or less green) than standard
Δb*	+1.36	Batch is yellower (or less blue) than standard

Hunter Lab Results:

Component	Value	Interpretation
ΔL	+1.11	Batch is lighter than standard
Δa	+0.52	Batch is redder (or less green) than standard
Δb	+0.69	Batch is yellower (or less blue) than standard

Both equations measure differences using similar L, a, and b labels, but the numerical values are not identical due to differences in calculation methods.

Important Tips for Interpreting Color Differences

- If you are communicating color data, verify which color difference equation is being used.
- Hunter Lab and CIEL*ab** use the same labels (L, a, b), but their numerical results are not interchangeable.
- If tolerance thresholds are set for quality control, ensure that they match the correct color difference equation to avoid misinterpretations.
- ΔE values provide a quick measure of total color difference, but ΔL, Δa, and Δb (or ΔC and ΔH) values help diagnose specific deviations (e.g., if the batch is too blue, too dark, or too dull).

By understanding the differences between these equations, you can choose the most suitable model for your application, ensuring accurate and meaningful color quality evaluations.

Software & PC Connectivity

The Datacolor P200 and P300 can be connected to a PC for data transfer and remote measurements using Datacolor TOOLS or Colibri software. The instrument supports three connection methods:

- USB-C
- Bluetooth
- Wi-Fi (P300 only)

PC Access & Software Integration

The PC Access feature enables direct communication between the instrument and Datacolor TOOLS or Colibri software. Before establishing the connection, ensure that the Datacolor TOOLS software is correctly configured on the PC. Detailed configuration steps can be found in the Datacolor TOOLS documentation.

For additional support see the User Guide for Tools or Colibri or contact Datacolor Service.

Establishing Connection

The Datacolor P-Series (P200 & P300) spectrophotometers can be connected to a PC using three different methods:

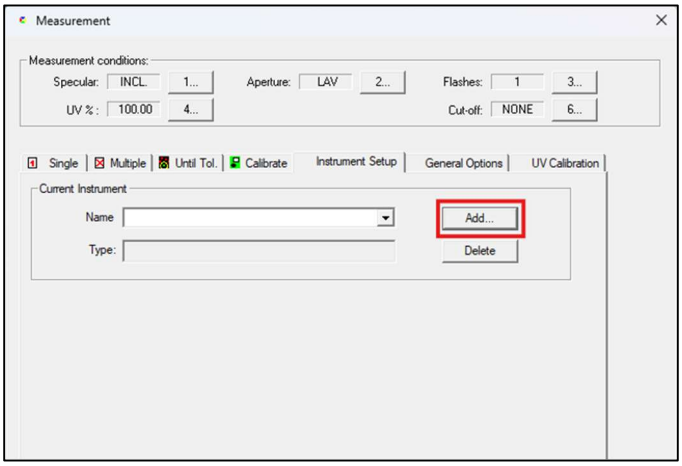
1. USB-C Connection: Requires a physical cable (included).
2. Bluetooth Connection: Connects wirelessly via the System Options menu.
3. Wi-Fi Connection (P300 Only): Connects through the System Options menu to the same network as the computer.

Once the connection is made, the steps for configuring and using Datacolor TOOLS or Colibri are identical across all three methods.

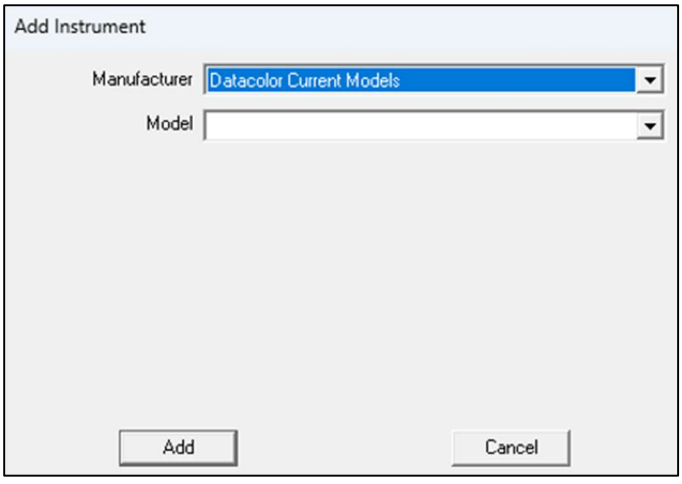
Configure the Instrument in Datacolor TOOLS / Colibri

Once the connection is established (USB, Bluetooth, or Wi-Fi), follow these steps:

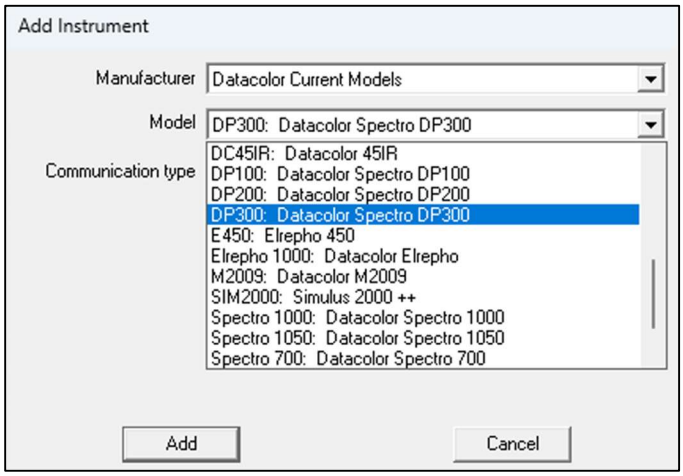
1. Open Datacolor TOOLS / Colibri.
2. Go to the Measurement Main Window and add the instrument:
   - Click ‘Add’



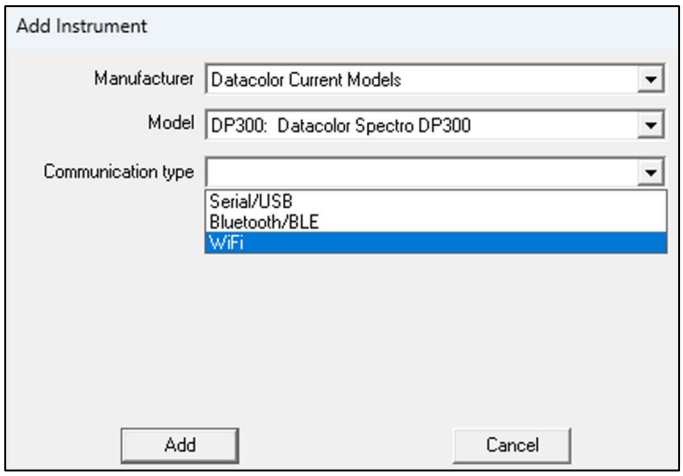
3. Select the Instrument Type:
   - Select ‘Datacolor Current Models from the manufacturer’s drop-down menu.



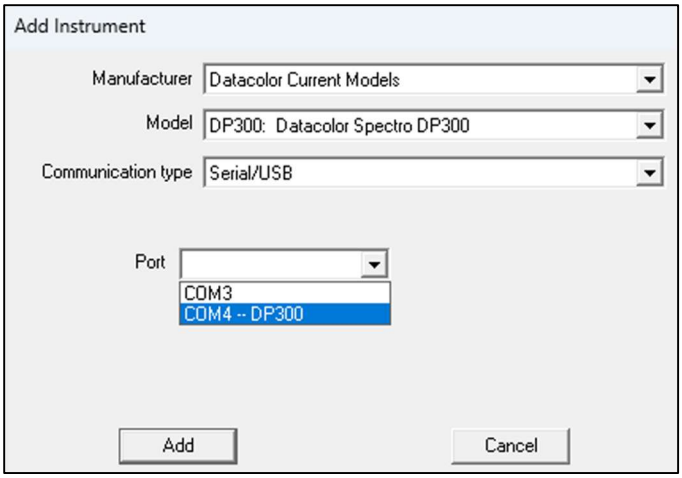
- Select the model number of the instrument you are trying to connect (DP200 or *DP300: Datacolor Spectro DP300 as shown*)



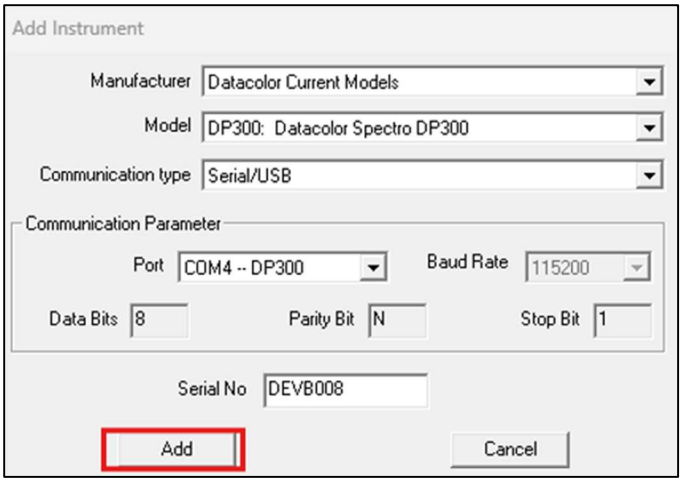
4. Select Communication Mode:
   - Select the preferred mode of communication by selecting the option of USB-C or BT of WiFi from the drop-down menu.



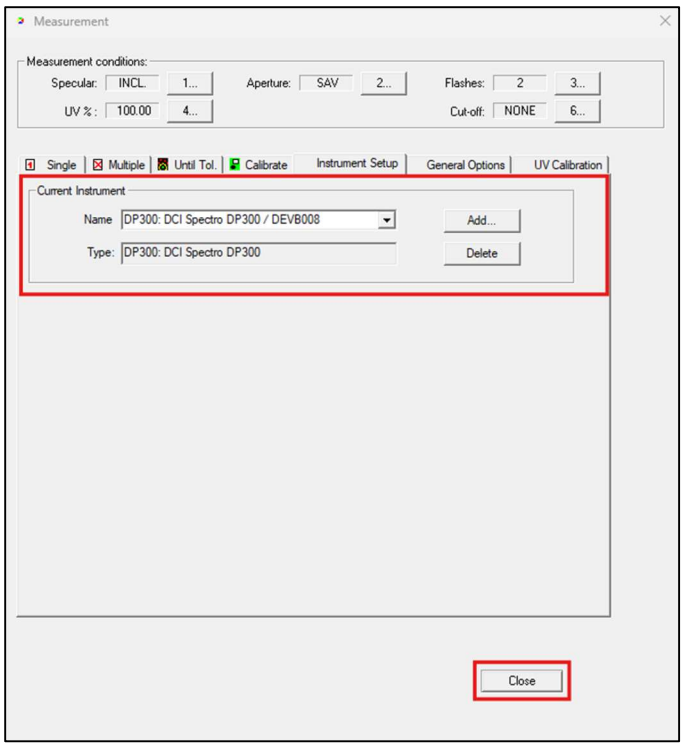
5. Enter the Port Assignment:
   - If using Bluetooth or USB, check the COM port assignment from the Device Manager and enter it here.
   - Select the port type with the instrument connection (for USB-C)



6. Check the Serial Number:
   - The instrument driver will automatically populate the serial number and other information.
   - Ensure all the information is correct.
7. Click ‘Add’ to register the instrument with the software.



8. The software will display "Instrument Connected" under the Current Instrument tab. Press ‘Close’ to exit the window and begin using the instrument.



Verify Connection Status

- In Datacolor TOOLS / Colibri, the connection status should now indicate Connected.
- If the instrument disconnects, check:
  - USB cable connection (for USB-C).
  - Bluetooth pairing (for BT).
  - Wi-Fi network stability (for Wi-Fi).

Now, the Datacolor P-Series spectrophotometer is fully set up and can be used for measurements, data transfer, and analysis within Datacolor TOOLS or Colibri.

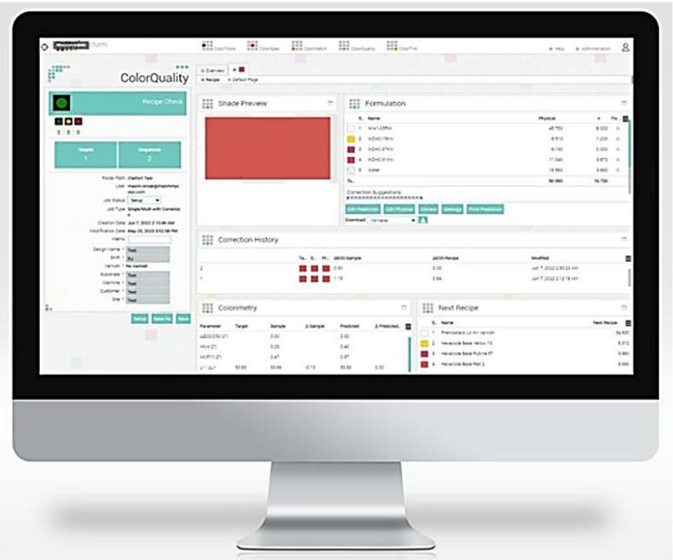
Note: For detailed instructions on how to use Datacolor Software solutions like Tools or Colibri, please visit datacolor.com or contact your local support team.

Perform Initial Calibration (If required)

Before making measurements, Datacolor TOOLS / Colibri may prompt a calibration check. Follow these steps:

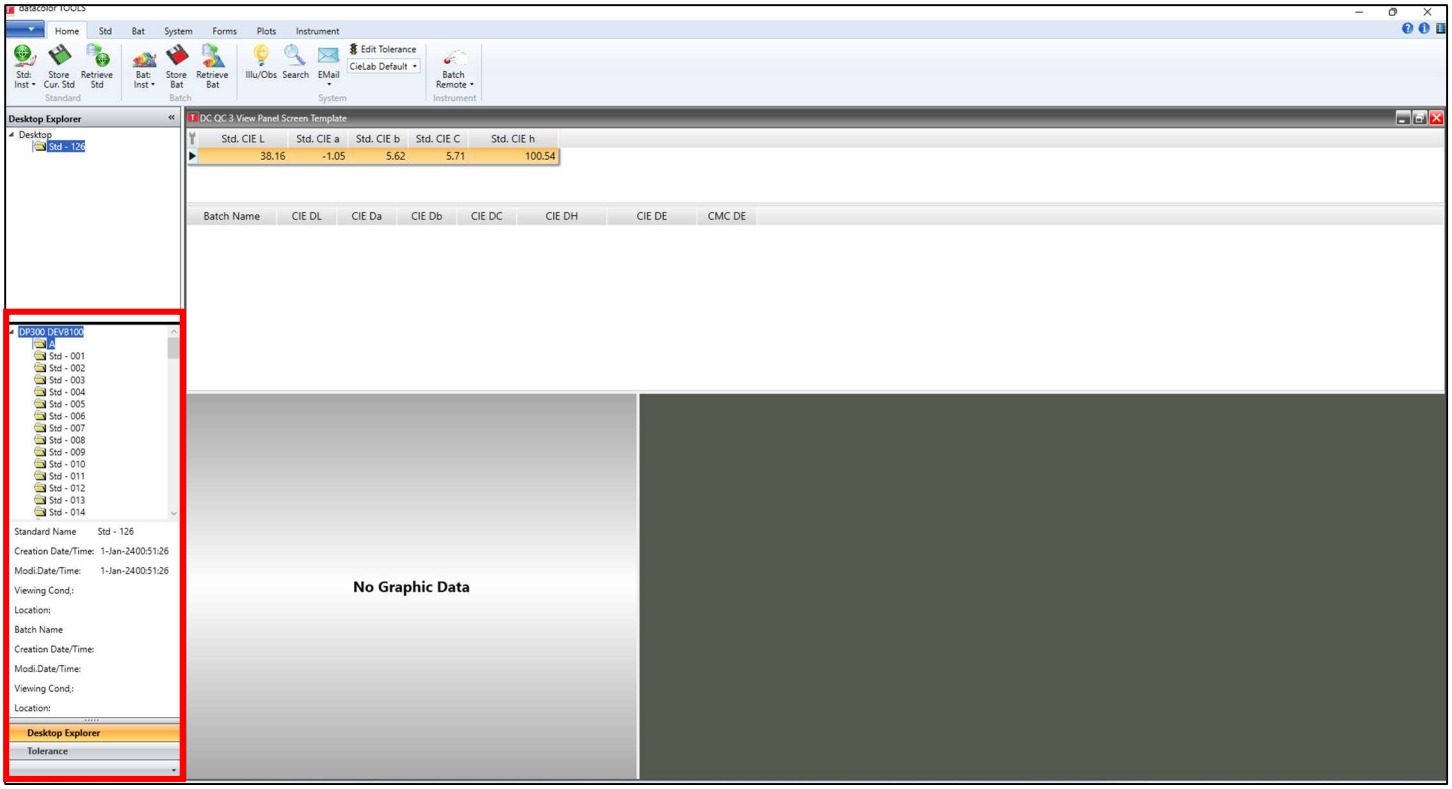
1. Click Calibrate in the software.
2. The system will guide you through:
   - Black Trap Calibration
   - White Tile Calibration
   - Green Tile Diagnostic Test (Optional, P300 Only)
3. If prompted, follow the calibration instructions as detailed in the Calibration Section.

Once calibration is complete, the instrument is ready to measure and transfer data.



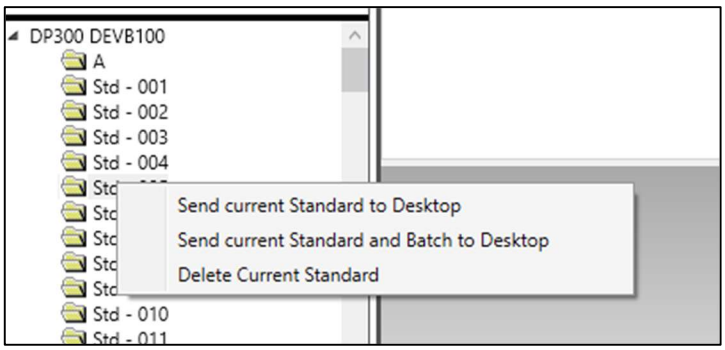
Data Transfer

Before transferring data, ensure the instrument is properly connected via. USB-C, BT or WiFi as described in the section above. Once the connection is successfully established, the instrument will be detected by the Tools desktop software, and an additional instrument-specific screen will appear on the left side below the Desktop Explorer view window. *(highlighted in the image below)*

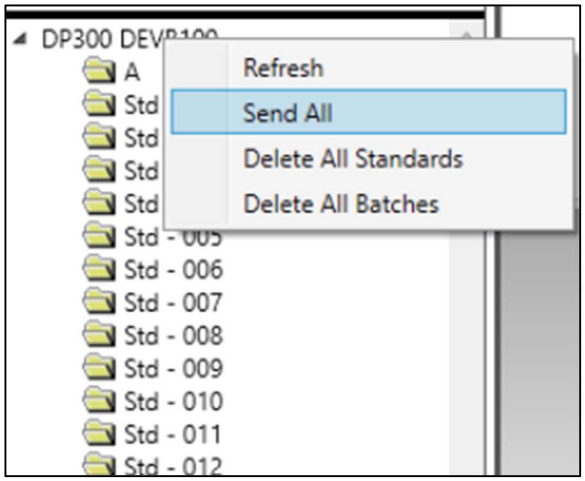


Transferring Data from the Instrument to Tools

1. In the Desktop Explorer screen, the bottom section will display all available measurements, including standards and batches, stored on the connected instrument.
2. To transfer a specific measurement or group of measurements:
   - Right-click on the selected measurement(s) or batch(es).
   - Select "Send Current Standard (or Batch) to Desktop".
   - The selected measurement(s) will move to the upper Desktop Explorer screen, indicating a successful transfer.
3. If needed, you can delete selected standards by right-clicking on them and choosing the "Delete" option.

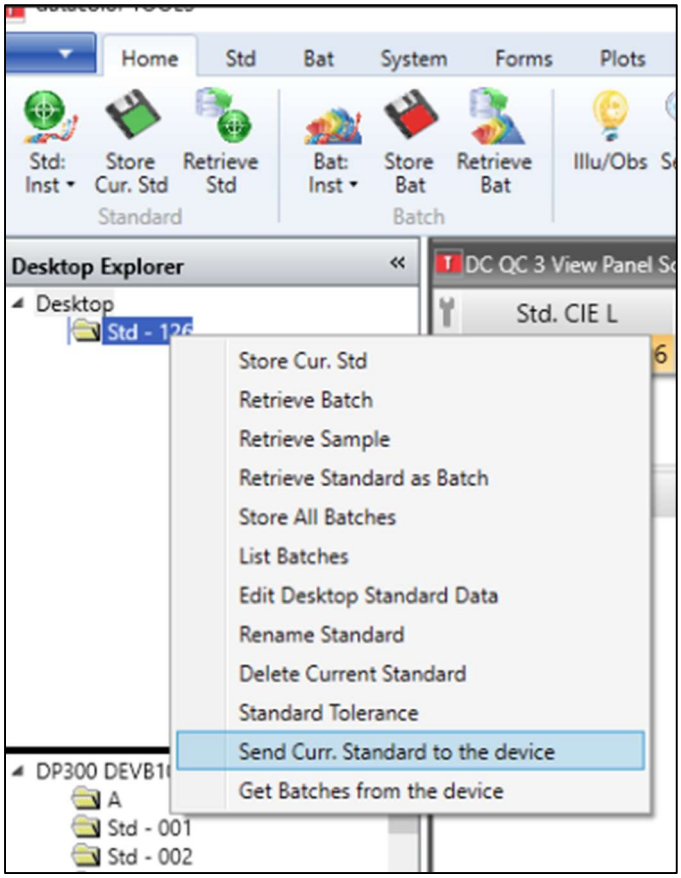


4. To transfer all stored measurements, right-click on the top-level folder and select "Send All."



Transferring Data from Tools to the Instrument

1. In Tools, locate the standard or batch that needs to be sent to the connected instrument in the Desktop Explorer window on the left side.
2. Right-click on the selected standard(s) or batch.
3. Select "Send Curr. Standard to the Device".
4. The transferred measurement will now appear in the bottom Desktop Explorer screen, confirming successful transmission to the instrument.



From the right-click menu, users can perform additional actions on stored standards and batches, such as:

- Retrieve a batch or sample
- Rename a standard
- Edit measurement details
- Delete standards or batches

Refer to the image above for a visual representation of these options within the Tools software interface.

Transferring Raw Data Files (Without Datacolor Software)

If the user does not have Datacolor software installed or wants to store raw data files for backup purposes, they can manually copy and paste data files from the instrument to a computer by following the instructions below:

1. Connect the Instrument to a Computer

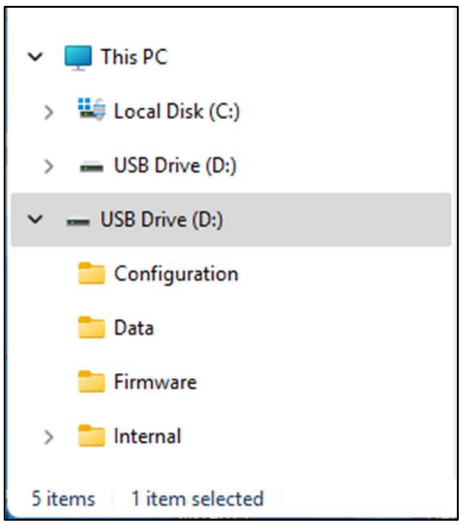
- Use a USB-C cable to connect the instrument to a computer.

2. Enable Expose SD Card Mode

- On the instrument, navigate to: System Options > System Information > Expose SD Card
- Once selected, the system will reboot to enable file access.

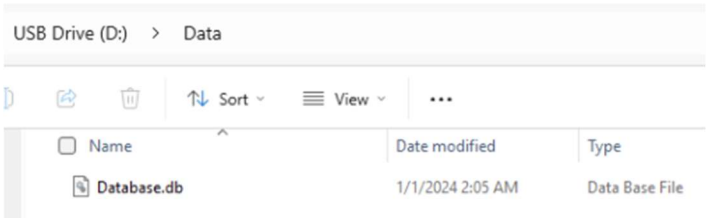
3. Locate the USB Drive on the Computer

- After rebooting, the instrument will appear as a USB drive on the computer.
- The drive will be labeled similarly to "USB Drive (D:)" (as shown in the image below).



4. Access and Copy the Database File

- Open the detected USB drive on the computer.
- Inside the USB drive, there will be five sub-folders: Configurations, Data, Firmware, Internal, SP2000Data.
- Open the "Data" folder and locate the file named "Database.db".
- Copy this file and paste it onto your computer or an external drive for backup.



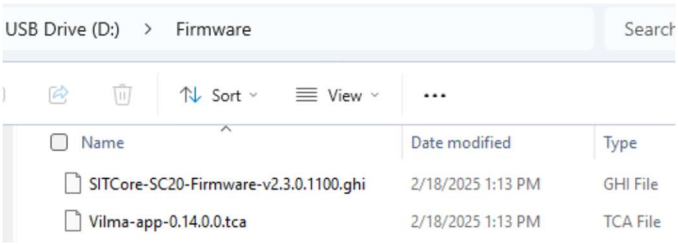
Restoring Data

If you need to transfer the database file to a new or different instrument, follow these steps:

1. Connect the new instrument to the computer using USB-C.
2. Enable USB storage mode by selecting: System Options > System Information > Expose SD Card
3. Once the instrument reboots and appears as a USB drive, open the "Data" folder.
4. Replace the existing "Database.db" file with the backed-up version.
5. Safely eject the USB drive and restart the instrument.

Note: The Database.db file can only be used with Datacolor products and is not compatible with third-party software.

Software Upgrade: To upgrade the software of the instrument, follow the same steps as above, but instead of opening 'Data' folder, open the 'Firmware' folder. There will be two files in 'Firmware' folder, GHI file and TCA file. Replace both of them with the new files provided by Datacolor.



Do Not delete any files after exposing the instrument SD card without proper replacements. Contact Datacolor support team to upgrade the software properly.

Instrument Maintenance

Certificate of Performance

The certificate of performance supplied with the instrument is valid for one (1) year, provided the following conditions are met:

- The instrument is used in an environment suitable for its type.
- The instrument is handled and used with care.

Datacolor strongly recommends that the instrument undergo annual service by an authorized service engineer to maintain optimal performance. Various maintenance and certification services are available. Please contact your local Datacolor office for more information.

The sections below provide detailed guidelines on instrument maintenance and calibration tile care, ensuring long-term accuracy and reliability.

Instrument Cleaning

- Measurement Port Inspection: Regularly check the measurement port for dust, sample particles, fibers, or discoloration due to environmental exposure.
- If the sphere interior accumulates loose materials, it should be cleaned by a Datacolor-certified technician.

Tile Handling and Cleaning

- Handle tiles with extreme care—avoid dropping or scratching the glazed surface.
- Always grasp tiles by their edges to prevent contamination.

Cleaning Calibration Tiles

- Clean tiles before each use with a soft, lint-free cloth.
- For oils, fingerprints, or residue, use a detergent solution free from optical brighteners, fluorescent materials, or photoactive dyes. A mild liquid dish detergent mixed as follows is recommended:
  - 1 part detergent : 250 parts water
- Moisten a soft, lint-free cloth with the solution and gently wipe the tile surface.
- Rinse with a clean, damp cloth to remove detergent residue.
- Replace tiles if they show scratches, chips, abrasions, or cracks, as surface damage affects calibration accuracy.

DO NOT: Immerse tiles in water or use abrasive cleansers, razor blades, or metal objects.

Cleaning the Black Trap

- Keep the black trap dust-free. Open the calibration stand by releasing the clips on the side. Inside, there will be a black tile held at an angle. Clean the tile carefully by moving it from its base.
- Use compressed air to remove accumulated dust.

Calibration Tile Storage

- Avoid temperature fluctuations—store tiles in an environment similar to sample measurement conditions.
- Protect from UV exposure—long-term sunlight or ultra-violet light can alter tile colors.
- Always store tiles in a protective case or container away from direct sunlight and contaminants.

Important: The instrument contains no user-serviceable parts. If maintenance is required, contact Datacolor-certified service personnel.

Warranty

The Datacolor P-Series spectrophotometers come with a three-year warranty, ensuring long-term reliability and performance.

- Standard 1-Year Warranty: Included with every purchase.
- Extended 2nd & 3rd Year Warranty: Available only if the instrument undergoes annual servicing performed by a Datacolor-certified technician or through the Guardian service program.

To maintain eligibility for the extended warranty, ensure timely annual service and calibration. For more details, contact Datacolor Support or visit the official Datacolor Guardian program page.

Conformance Table

User Manual available	Digital Form
Datacolor address	Datacolor Inc. 5 Princess Road Lawrenceville, NJ 08648 United States of America
Model #	P100, P200, P300
Electrical rating	5 Vdc, 1.5A
Operating environment	Indoor
Overvoltage Category	Overvoltage Category 1
Rated altitude	2000m
Rated ambient temperature	5 - 40°C
Battery charging ambient temperature	0 - 35°C
Rated Humidity	0 – 100% non-condensing
Wet location	Do not use in wet location
Pollution degree	PD2 (normal everyday use)
IP rating	IPX0
Impact rating	IK08
Cleaning instruction	Clean with common household solvents

Bluetooth/WiFi Module Operational Statement:

The Bluetooth/WiFi Module included in this product supports three protocols: Bluetooth (BT & BLE), WiFi IEE802.11 b/g/n. Each of these protocols cannot receive or transmit data while another protocol is engaged in data transmission or reception. In such scenarios, this module employs time-division multiplexing to manage the reception and transmission of packets.

Bluetooth Classic (BT) and Bluetooth Low Energy (BLE) are two separate protocols under the Bluetooth umbrella, designed for different purposes

This product is Bluetooth registered.

Regulatory Statement

FCC COMPLIANCE STATEMENT

CAUTION: Changes or modifications not expressly approved could void your authority to use this equipment

Note:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

INDUSTRY CANADA STATEMENT

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.