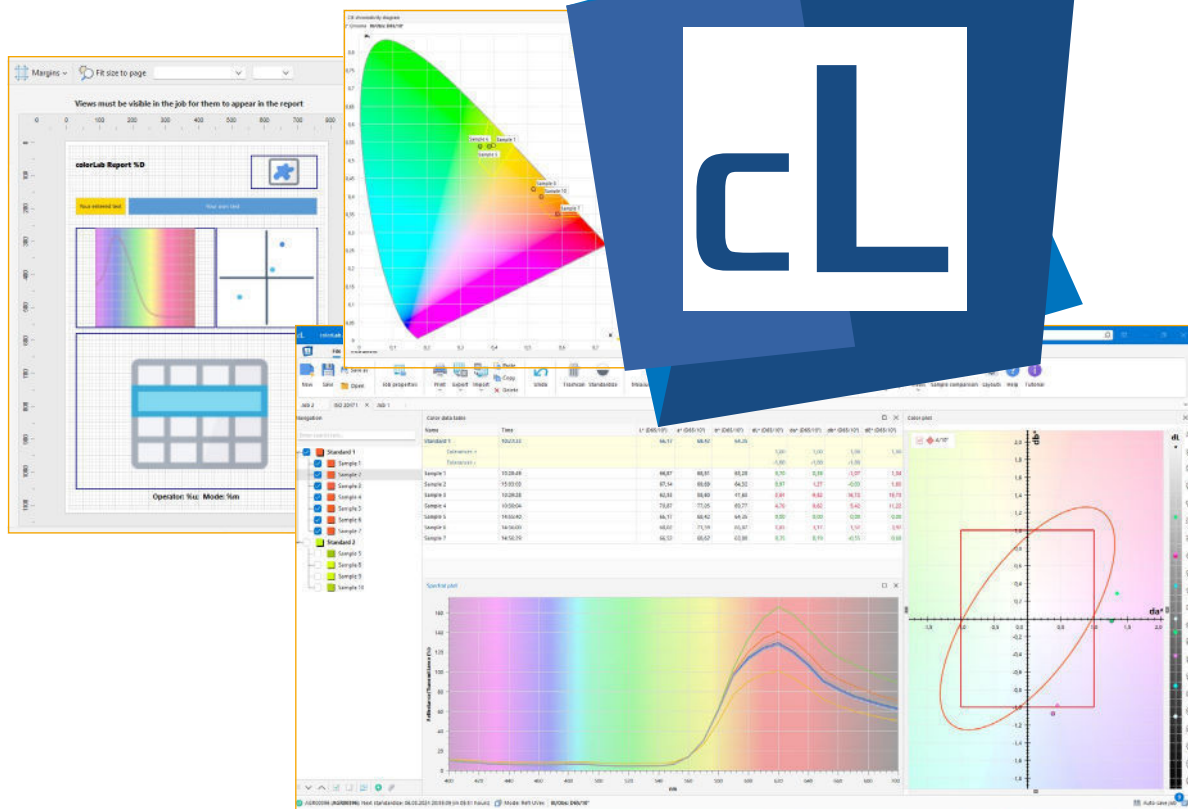


colorLab

Quality control software for HunterLab Instruments.



colorLab Software

- Measure
- Evaluate
- Archive
- Communicate

colorLab

Easy-to-use software for color management.

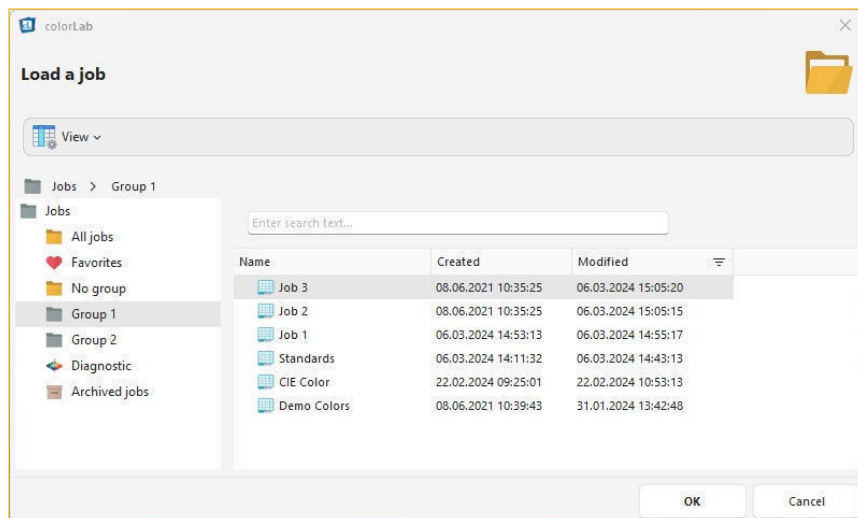
colorLab allows you to easily record, process and evaluate your measurements. They can be visualized not only in tables and charts, but also in various other views that can be configured individually. With the memo view you can place comments or document a product history. An image view allows you to add pictures from a webcam or from your local harddrive. The CIE chromaticity diagram helps you visualize complex tolerance criterias as found for traffic signs or reflective clothing. Add formulas to your measurements table or expand software functionality with add-ons. **colorLab** includes a report designer that helps to design and manage reports. A system of two databases to share settings and reports supports your workflow, because once a report is created, it is available to all other workplaces.

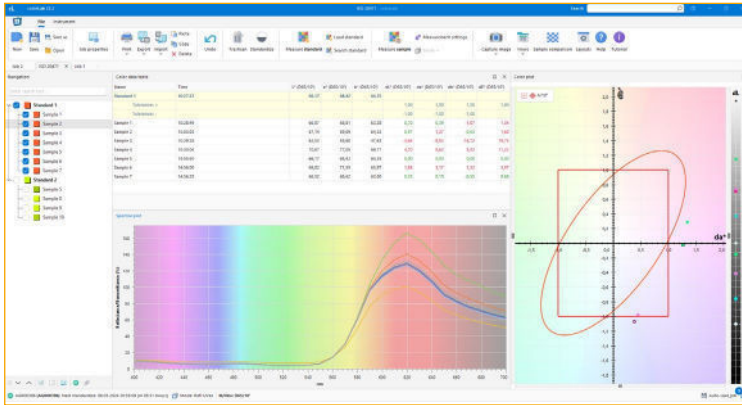
colorLab is also supported by our evaluation software **multiView**: Open **colorLab** jobs in **multiView** from your computer without the need to be physically at the workplace. You can evaluate laboratory and inline measurements (measured with **colorWorkbench**) at the same time. **colorLab** supports the use of multiple monitors to give you a better visualization. A **colorLab** job supports up to three illuminants at the same time.

Database system.

Standards and jobs are saved in a SQL database. The default system is SQLite, so there is no need to install a separate database system. To link multiple installations and to connect the software to **multiView**, Microsoft SQL Server (version 2012 R2 or newer, including Azure SQL) is supported as well as PostgreSQL and MySQL. You can search for jobs and standards in the database. There is also an automated search for a standard. Standards can be grouped. After measuring a sample, **colorLab** shows a list of standards, that are the closest match to the reading. Jobs can be stored in virtual job group. There is also a favourite group for often used jobs. The color data table can be easily exported to Excel, CSV and PDF. You can even import measurements (as a spectrum) from Hunterlab's EasyMatch®QC software via the clipboard. Jobs can be exported to a file and re-imported to **colorLab**.

If you are using more than one installation (or a **colorWorkbench** installation), a second database can be used to share settings, status and reports.





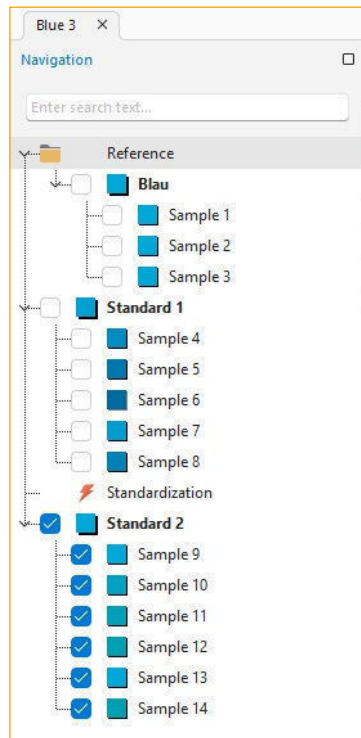
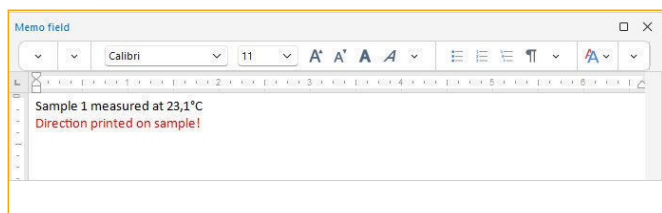
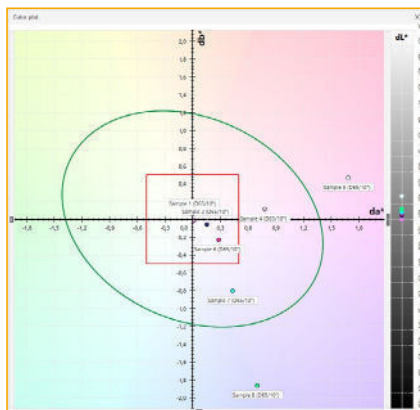
colorLab does the job.

Standards, samples and the active views are saved as a job. The job layout can also be saved as a template and applied to other jobs without having to make adjustments there again. A job can contain any number of standards. An unlimited number of samples can be linked to each standard. Any number of jobs can be displayed and created at the same time. To simplify the overview, measurements are always displayed in a menu tree. Measurements can also be grouped into folders in the menu tree. Double-clicking on a measurement calls up the properties.

Alternatively, there is a details view. A measurement can be saved in the database as a standard. In addition, measurements can be moved back and forth between standards using drag and drop. The deviations are then dynamically adapted to the new standard.

One view, many views.

The color plot displays CIE $L^*a^*b^*$ and CIE L^*C^*h as absolute or difference values. CMC ellipses for standards and tolerance boxes can be displayed. The diagram can be zoomed and scrolled.



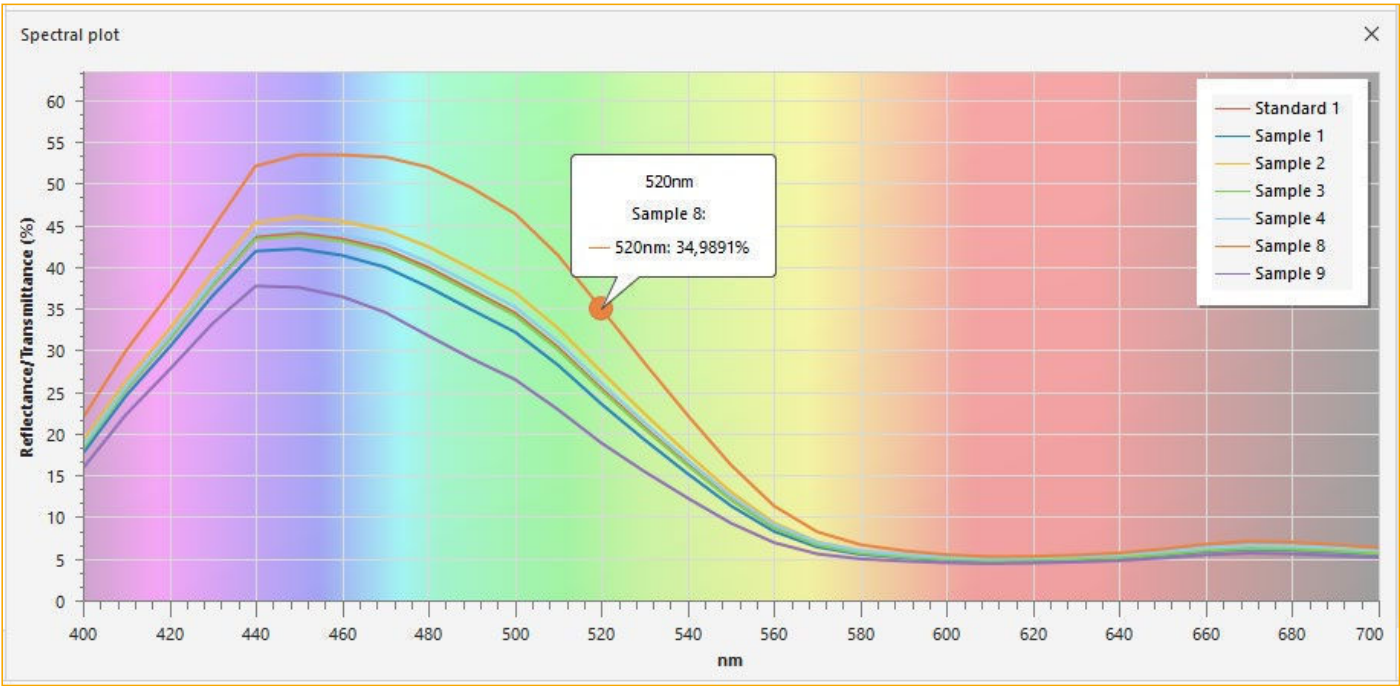
The menu tree shows all measurements in the job. The measurements can be grouped into folders.

Easily create notes on measurement series or to document the measurement method. The memo view includes a complete RTF editor including text formatting and creation of hyperlinks, comments, images and tables. The content of the memo field is saved in the job.

Color data table

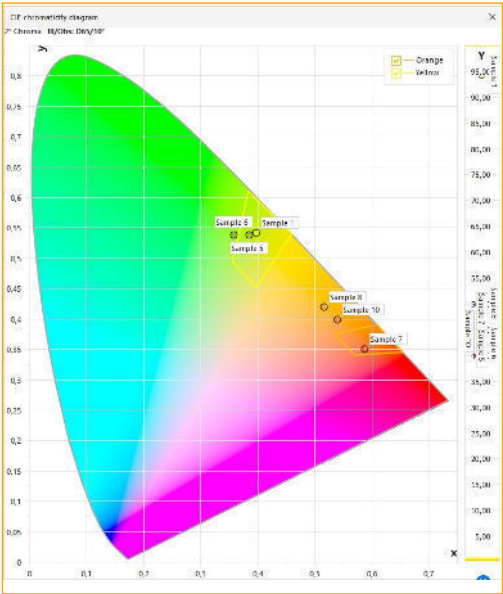
Name	Date	Time	L*	a*	b*	ΔL*	Δa*	Δb*	ΔE*
Standard 1	06.03.2024	15:40:07	47,38	-15,09	-38,40				
Tolerances -						1,50	1,50	0,50	2,00
Tolerances +						-1,50	-1,50	-0,50	
Sample 2	06.03.2024	15:40:17	48,75	-17,75	-38,34	1,37	-1,75	0,06	2,23
Sample 3	06.03.2024	15:40:21	47,22	-15,75	-38,34	-0,15	0,24	0,05	0,29
Sample 6	06.03.2024	15:40:53	48,44	-12,63	-37,27	1,06	2,34	1,12	3,68
Sample 7	06.03.2024	15:41:09	45,54	-13,20	-36,29	-1,74	2,63	0,11	3,20

The color data table shows the measured color values. The column configuration can be freely selected by the user. All columns in the table can be sorted and grouped. In addition, statistical values (minimum, maximum, average, number) are available for each column. The color data table can be easily exported.



The spectral curve shows the characteristics of the measurements in reflection and transmission or absorption/scattering (K/S). The range can be selected between 350 nm and 1050 nm in 5/10 nm steps (depending on the instrument type), for example to only display a certain wavelength range. The individual spectral curves can optionally be selected separately. In addition, an informative tooltip is displayed when you hover the mouse over a curve, which shows both the absolute values and the deviation from the standard. The colored background visualizes the color range so that the effects can be assigned without detours.

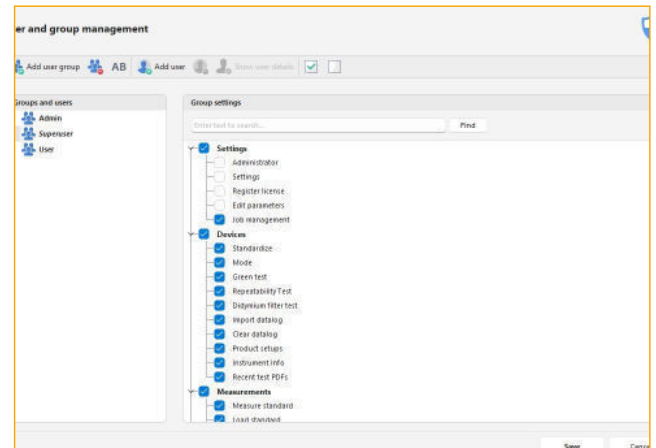
The CIE standard color chart enables visualization of the xy color location, e.g. for a clear representation of the EN ISO 20471 tolerance fields. Any number of tolerances can be displayed at the same time and added or deselected at runtime. The tolerances can be saved in the database and are therefore also available for other jobs or other locations. A separate pass/fail determination (xy pass/fail and Y, or beta pass/fail) is available separately for each active tolerance.



User management.

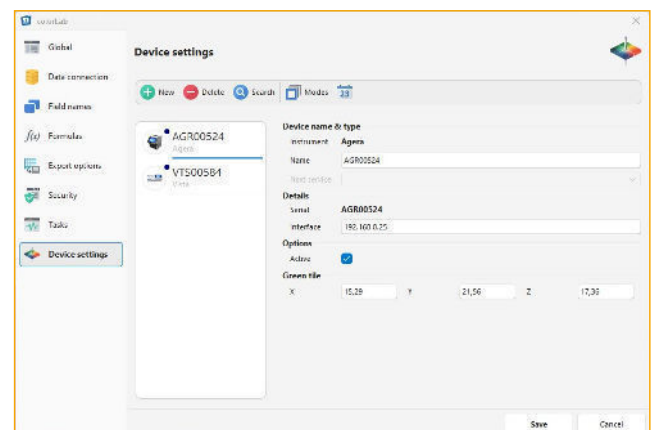
In order to be able to use the full range of functions of the software, an administrator login is provided in the software. If further options for user restrictions are required, **colorLab** provides a user and login system. Groups and users can be created here and permissions can be assigned to each user group (Windows users are also possible). Blocked functions are grayed out.

The user system is compatible with the colorWorkbench user system. Once created, users can log in to any software. Appropriate permissions can be set for each software.



Instruments. One. Many. All!

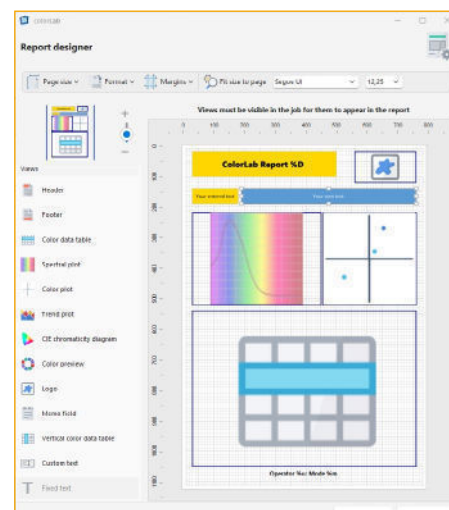
Whether you want to control just one device or several at the same time: **colorLab** knows them all. If you have more than one device, the corresponding buttons are changed to a list. To make it easier to identify the measuring devices, you can choose meaningful names and store different modes for each device. One mode can be defined as the standard mode.



Reports. Designed for you.

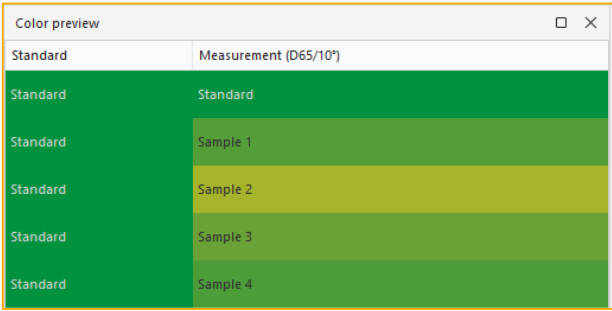
In addition to the standard report provided by **colorLab**, you can create and save individual reports. Elements such as measurement data, diagrams and text can be freely placed and formatted in the graphic report designer. It is also possible to integrate external graphics, such as the company logo.

All reports can be exported and used at other **colorLab** workstations.



Color preview.

The color preview displays the visual color difference as RGB preview. Depending on your monitor calibration, you will be able so see the difference right after the measurement. A tooltip will also display the RGB values of the measurement.



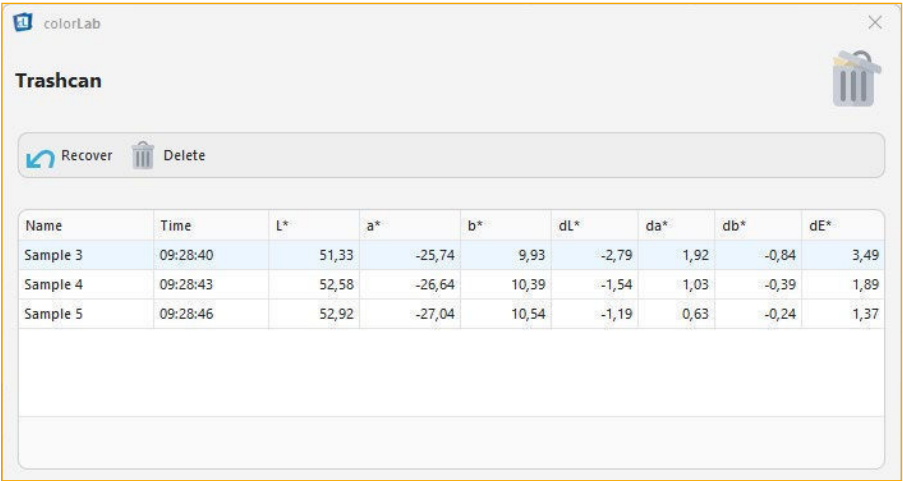
Standard search.

colorLab will compare your measurement with all standards in your database and present you the closest match in a handy list. This happens in a split second and you can load the standard to your current job.



Trashcan.

Ever deleted a measurement accidentally? **colorLab** has a job trashcan that will store all deleted measurements. It is saved inside the job and not lost after the job is closed. You can recover measurements or delete them permanently.

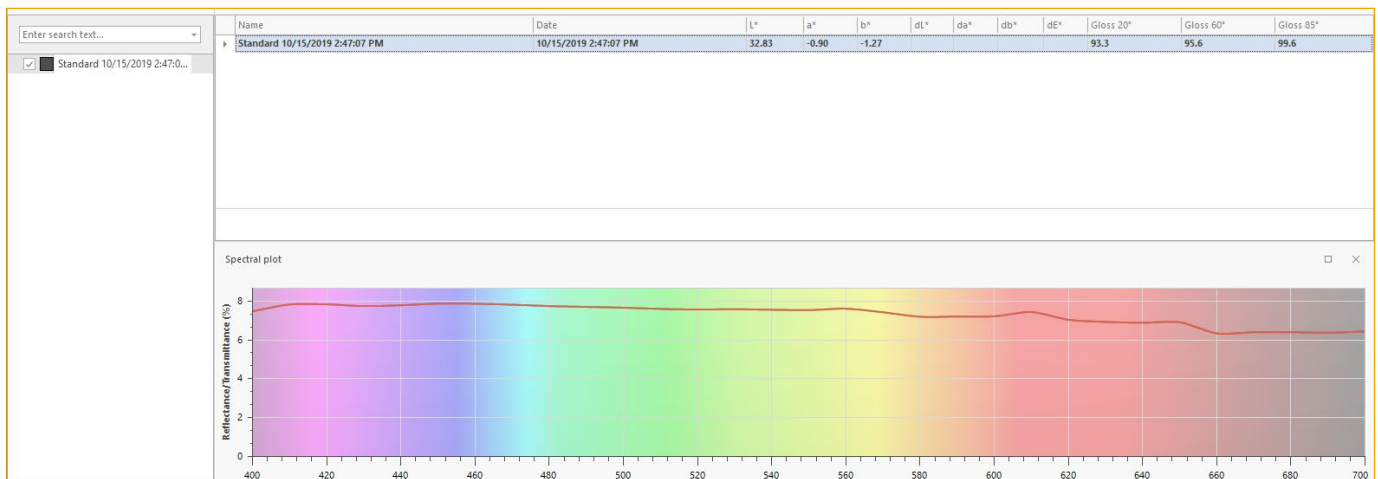


Additional Features

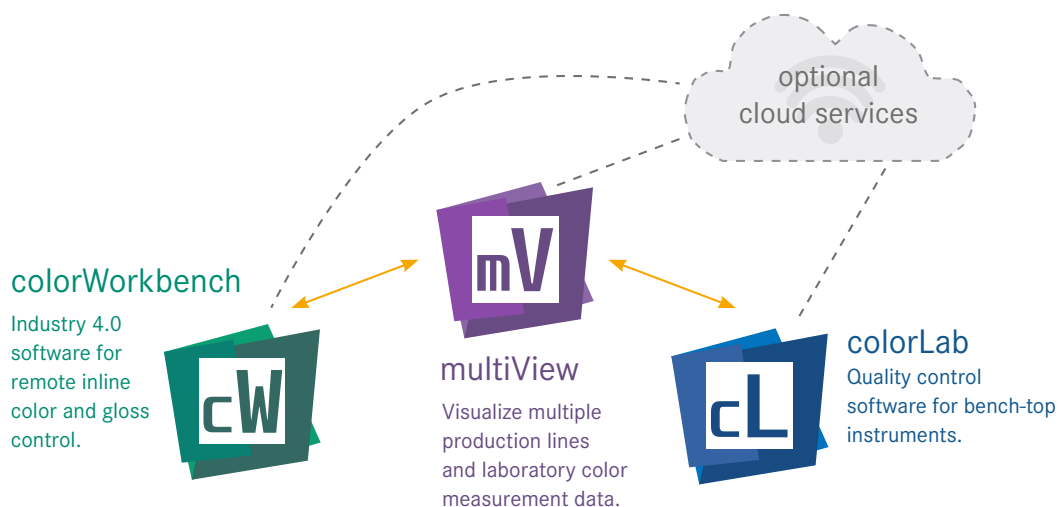
colorLab offers an interface for additional plugins. These extend **colorLab's** functionality and integrate seamlessly into the software. Multiple plugins can be active at the same time. Custom developments on request.

Measuring gloss simple and effective.

Gloss measuring devices can also be integrated into **colorLab**. This means that you can quickly and easily record the gloss value in addition to the color value, both are displayed in the color value table. Select up to three angles (20°, 60° and 85°). A gloss measuring device can also be calibrated using **colorLab**.



Enhance your color measurement experience.



Specifications colorLab

Features	
Color Scales	■ CIE L*a*b*, CIE LCh, CIE Luv, RxRyRz, Hunter Lab, XYZ, Yxy, Absolute and Difference
Observer	■ 2° und 10°
Illuminants	■ A, C, D50, D55, D65, D75, F2, F7, F11, TL84
Measurement modes (device-specific)	■ Standard, Haze, RSIN, RSEX, Opacity, TTRAN, RTRAN
Difference Indices	■ dL*, da*, db*, dC*, dH, dh, dE*, dE (Hunter), dE CMC, dE 2000, dYI E313, dYI D1925, Average Strength, Weighted Strength, Residual Color Difference, and many more
Indices	■ YI E313, YI D1925, WI E313, WI CIE, Y Brightness, Z%, Tint E313, Citrus Scales (ColorFlex® Citrus), Tomato Indices: a/b Ratio, FTCl, TJS, TCS, TSS, TPS, Lycopene (ColorFlex®Tomato), HCCI, SCAA/G, SCAA/C, Coffee Roast (Aeros®, ColorFlex®Coffee), Color Value (SWL, SUM, WSUM), Gray Scale, Gray Stain, Metamerism Index, Gloss (Agera®), ADMI, ASBC, ASTM D1500, EBC10, APHA, Gardner, Saybolt, Iodine, USP, EP, EP 2.2.2., Transmission Haze, Y Transmission, Lovibond®(R/Y), Opacity dE*, Y Brightness, Yxy Pass/Fail, Beta-Value, Beta Pass/Fail, BCU, 457nm Brightness, Blackness My, Jetness Mc, Undertone dM
Custom Indices	■ APHA, EP, USP, Gardner with customizable path length
Spectral Plot	■ % Reflectance, % Transmittance (d/8° only), Absorbance, K/S, % Strength
Spectral Data	■ % Reflectance, % Transmittance (d/8° only)
Search Standard	■ Search for the nearest standard in the database, closest x-matches are listed (dE, dE*, dE CMC, dE 2000), search only in a specified standard group
Data Views	■ Color data table, Spectral data table, Color Plot, Spectral Plot, CIE Chromaticity Diagram, Color Preview, Memo Field, Image Preview, Sample Comparison, Vertical Color Data Table, Details, Dashboard
CIE Chromaticity Diagram	■ Freely configurable tolerances with Pass/Fail Option
Data and Formula Fields	■ Input fields (format and name definable, optionally mandatory field), additional fields for formulas, fields for additional modules, any number of own formulas including parameters configurable
Languages	■ English, German, Czech (more to come)
Other Features	■ Grouping of jobs and standards, folders available for structuring samples within jobs, customizable layouts, standard search, time-controlled measurements, average measurements, report designer, export function, interface for custom plug-ins, use of shared resources at different measurement workstations, multiView-support, dark mode, multi-device support, support of 3 illuminants per job, clipboard customizable, combined barcode, expiration date for standards, automatic device search, EasyMatch Job-Import, global search (jobs, measurements, standards), trash can for deleted measurements, multi-level undo (measurements), workflows, layer thickness correction
Database Systems	■ SQLite (Standard), Microsoft SQL-Server 2012 R2 or newer, SQL Azure, PostgreSQL, MySQL
Configurable Admin Mode	■ Optional user management with rights and password assignment (Windows users possible)
Compatible Instruments	■ Aeros®, Agera®, ColorFlex®EZ, MiniScan®EZ, UltraScan®PRO, UltraScan®VIS, Vista® <i>ColorQuest®XE, D25®NC, LabScan®XE (Devices discontinued, but usable with colorLab)</i>
Computing Requirements	
Operating system (32/64 Bit)	■ Microsoft Windows® 7, 8.1, 10, 11
Processor	■ Intel®Core™ i5 Processor 2,2 GHz or better
Memory	■ min. 4 GB, 8 GB recommended
Display	■ 1920x1080 pixel resolution recommended
Drive	■ USB storage device or download
Ports	■ Depending on the device, USB or network connection
External Inputs	■ Keyboard, mouse, barcode/QR code reader
Other	■ Internet access for software updates