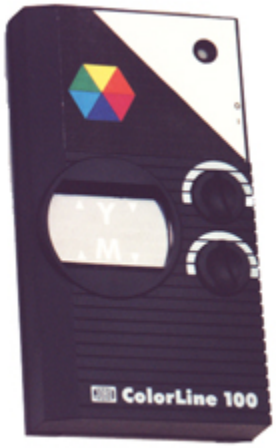
nstructions for the ColorLine 100



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1. Introduction

The ColorLine 100 is a simple yet advanced darkroom tool to determine the filtration required when making enlargements from color negatives in the home darkroom. It is battery powered, and only requires a single calibration to allow enlargements of varying sizes to be made. It uses the proven averaging technique with a below the lens diffuser.

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2. Scope of Delivery, Controls and Operating Elements

- Calibration Y
- Fine Adjustment Controls
- Calibration M

- Screwdriver for Calibration
- Diffuser Disc

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3. Power Supply

Open the battery cover on the rear of the instrument and insert a standard nine-volt battery. The ColorLine is now ready for calibration.

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4. Calibration

Before the ColorLine can be calibrated, you need to make a perfect color print using your normal method (Note that the format should not exceed 8x10"). Choose an average landscape subject with no dominant colors. When the print is completed, do not change any of the filtration settings or the height of the enlarger head, and leave the negative in the enlarger carrier.

Remove the red filter from the enlarger holder. Place the square diffuser on the filter holder, fixing it in place with adhesive tape if necessary.

1. Switch both the enlarger lamp and the ColorLine 100 on
2. Open the lens to its maximum aperture
3. Position the ColorLine 100 in the center of the baseboard image
4. Ensure fine adjustment controls are at mid position
5. Swing diffuser under lens
6. Switch off the darkroom lights and safelight
7. Adjust yellow and magenta calibration controls with the screwdriver supplied until all the LED indicators are off - you may need to re-adjust each control once or twice.

Your ColorLine 100 is now calibrated for your paper and processing.

Note: Your ColorLine 100 is switched on first in complete darkness. It may take up to one minute to stabilize.

Remedy: Please put the measurement cell directly under the lens for a few seconds.

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5. Determination of Filtration

1. Switch both the enlarger and the ColorLine 100 on
2. Place negative in the enlarger, open the lens to its maximum aperture, and focus the image on the enlarger baseboard
3. Swing diffuser under lens
4. Place the ColorLine 100 in the center of the baseboard
5. Switch darkroom lights and safelight off

6. Adjust both the yellow and magenta filtration on the enlarger color head (set cyan at 0) until both the yellow and magenta LED's on the ColorLine 100 are off.

Increase fitter values

Reduce filter values

7. Switch enlarger light off, swing diffuser away from the lens, stop the lens down and expose the print.

The exposure time can be determined with the JOBO Comparator or the JOBO ComTime. Adjust the lens aperture if necessary to keep the exposure time within the 5-20 second range. This will prevent color shifts due to slope errors.

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6. Fine Adjustment Controls

Sometimes, prints with large areas of a single color can show a dominant color cast. A scene with large areas of grass may show a magenta cast, for example, and dominant skies can show a yellow cast. The ColorLine 100 is fitted with two fine adjustment controls that allows these casts to be corrected temporarily without altering the instruments basic calibration.

If a Print Made Using a ColorLine 100 Analysis Shows a Color Cast, Then:

1. Make a print that shows no color cast by manually adjusting the enlarger filtration without using the ColorLine 100.
2. Position the ColorLine on the enlarger baseboard and position the diffuser below the lens.
3. Adjust the fine adjustment controls until both the yellow and magenta LED's on the ColorLine 100 are off. Do not change the instrument's basic calibration by altering the screwdriver adjustments as described in 4.

This control can also be used to correct minor variations, if a different paper is used temporarily. Notes of settings can be made around both controls in pencil on the white border provided. For normal readings with the basic calibration, reset the two fine adjustment controls again to the mid-position. Any similar color casts occurring can now be corrected simply by re-setting the fine adjustment controls to the marked positions.

Range of fine adjustment is approx. ± 15 C.C.'s ('color correction' filter values).

If You Need a Little Help...

When making the test print for calibration, remember that to remove a color cast, you add the some color to the enlarger filtration. This is the same as subtracting the complementary or opposite color. The ColorLine 100 has a 'Color Star' printed on the front panel to help - notice that blue is opposite to yellow, magenta is opposite to green and cyan is opposite to red.

Use the same principles when using the fine adjustments to remove a color cast caused by a dominant color that is introduced by the subject, or because you have temporarily changed your paper or processing.

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7. Spot Measurements (For Advanced Users Only)

The ColorLine 100 has a small diameter (4mm) measurement cell. This can be calibrated separately for any specific color tone in the image, rather than the integrated diffusion technique described above. This color tone value could be a highlight, a skin tone, a neutral gray or a particular color patch on a color chart like the JOBO Color Chart. To calibrate the ColorLine 100 for spot reading:

1. Make a test print containing the desired tone to calibrate to, as before
2. Switch both the ColorLine100 and enlarger lamp on
3. Switch off the darkroom light and the safelight
4. Open the enlarger lens to full aperture
5. Without using the diffuser, position the ColorLine's sensor cell on the desired color tone area.
6. Adjust yellow and magenta calibration controls with the screwdriver supplied until all the LED indicators are off - you may need to re-adjust each control once or twice.

The ColorLine 100 is now calibrated for spot reading of the color tone you have chosen.

If You Need a Little Help:

When using the ColorLine 100 for spot measurements, remember that you can only use the instrument for the specific calibrated color tone. A skin tone calibration can only be used for measuring skin tones, for example. Some advanced color printers use the film 'mask' color between frames to calibrate spot color meters, and the ColorLine 100 can be used in this way, too. It pays to experiment when you gain a little experience.

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8. Technical Data

- Type: Simultaneous Tri-Cell Color Analyzer
- Channels: One Fixed, Plus Manual Adjustment
- Modes: Spot or Integrated
- Voltage: Battery PIPS 9V
- Power Consumption: 9mA
- Operational Temperature: 18-30 OC, maximum 60% relative humidity
- Size: 2.5 x 7.5 x 14cm (0.9x2.9x5.5")
- Weight: About. 150g

Battery Control

If the Y and M LED's illumination is low, the battery needs to be replaced. Low battery voltage, however, will not affect the instrument's accuracy.

Low Illumination

If the image intensity isn't high enough for a reliable measurement, the Y and M LED's will blink. In this case, temporarily lower the enlarger head for measurement, and then return it for the print exposure.

External Power Supply

The ColorLine 100 can be operated with a nine-volt AC adapter (# 6485), available from your JOBO dealer.

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9. Maintenance and Care

The ColorLine 100 does not need any special maintenance. Just like any other precision measuring instrument the ColorLine, too, must be protected from excessive heat and humidity as well as shock.

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10. Service

If the ColorLine does not work or shows troubles, we recommend sending it to JOBO for a check and possible repair.

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11. Accessories

Item No. 6485 AC Adapter 9V, direct current, only suitable for Euro-plug