

# Operating Instructions

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**cal-COLOR 400**  
Calibrated Precision Colormeter

The  
**Cooke**  
Corporation

# Operating Instructions

## Features

The cal-COLOR 400 is ergonomically designed for easy operation featuring single button operation; auto ranging display and auto power "OFF". The cal-COLOR 400 comes complete with a calibration certificate traceable to NIST (National Institute of Standards and Technology, USA) standards, integral stand, operation instructions, carrying case and 9 volt battery.

## Controls

To switch on the cal-COLOR 400 click the front "ON" button. The cal-COLOR 400 will run through its initialization sequence, and the auto ranging LCD will display illuminance in foot-candles (fc) or lux, color temperature in Kelvin (K), and chromaticity co-ordinates in x and y. The LCD is read directly without multipliers, except when the illuminance reading is followed by a "k" indicating units of 1000.

Eg. 3.89 kfc reading = 3.89 kilofootcandles  
The reading is calculated as  $3.89 \times 1000 = 3890$  fc.

The cal-COLOR 400 allows you to easily measure and read the LCD simultaneously. If you wish to "HOLD" the reading, press and hold the ON button, and release of the button returns function to "AUTO RANGING" mode.

The cal-COLOR 400 features auto power "OFF" after five (5) minutes of non-use.

To switch between foot-candles (fc) and lux units, double click the "ON" button.

## **How to measure**

The cal-COLOR 400 provides accurate measurements when the operational guidelines are followed. The cal-COLOR 400 measures the light that falls onto a surface from a light source in foot-candles (fc) or lux units, color temperature in Kelvin (K), and chromaticity co-ordinates in x and y.

When held at arm's length in a comfortable reading position, the angled light sensor is automatically positioned horizontally and ready to measure.

When taking measurements from a table or desk surface, hold the instrument near the surface so the light sensor is parallel to this surface. This will allow you to comfortably read the measurements from the cal-COLOR 400 LCD.

When taking illuminance measurements at a vertical surface, repeat the operation so the light sensor is parallel to the surface. This allows for comfortable reading of the LCD, while simultaneously taking the measurements.

A convenient integral support stand that swings out from the cal-COLOR 400 enables remote measurements from a flat surface. This permits the angled light sensor to be parallel to the surface, and allows you to read from long distances. The cal-COLOR 400's large LCD display can be read from a distance of 15 feet or more. While using

the support stand to hold the cal-COLOR 400 upright, depress the ON button and position yourself a reasonable distance away from the cal-COLOR 400. This way, physical shadows or clothing reflections do not interfere and alter your measurements.

## **Maintenance**

### *"Battery Replacement"*

When the LCD displays the "LO BAT" sign in the lower right hand corner, it indicates that the battery output is too low and should be replaced to prevent erroneous readings. To ensure accurate measurements, the cal-COLOR 400 should be re-calibrated on a yearly basis. The re-calibration service provided by The COOKE Corporation will maintain the cal-COLOR 400's calibration traceability to NIST standards.

## **Cleaning**

Use a damp cloth and mild detergent for the painted surfaces. The optics should be cleaned with lens paper, methanol, or compressed air depending on the contamination. DO NOT USE ACETONE OR OIL BASED CLEANERS.



6930 Metroplex Drive,  
Romulus, Michigan 48174  
tel 248 276 8820 fax 248 276 8825  
info@cookecorp.com www.cookecorp.com