



SP 60

PORTABLE SPHERE SPECTROPHOTOMETER

ADVANCED
COLOR
MEASUREMENT

—in the laboratory, plant or field

- Lightweight, compact, portable instrument
- Diffuse/8° sphere optical geometry
- Fixed 8mm aperture
- Large, easy-to-read graphical LCD display
- Opacity and color strength measurement
- Flip-back target shoe for flexible use
- Simultaneous measurement of both specular component included and specular component excluded
- Rugged construction
- Rechargeable battery for remote use



EXPERIENCE

the measurable color difference.™

SP60

PORTABLE SPHERE SPECTROPHOTOMETER

The SP60 is an affordable sphere spectrophotometer, designed to give fast, precise and accurate color measurement information on materials ranging from paper and paint to plastics and textiles.

Measuring Functions and Indices

The SP60 provides absolute and difference measurements for the following colorimetric systems. These values can be obtained from any of nine illuminants with 2° or 10° observer angle: $L^*a^*b^*$, $L^*a^*b^*$, $L^*C^*h^*$, $L^*C^*H^*$, E^*_{ab} , ECMC, E CIE94 and XYZ. Whiteness and yellowness per ASTM E313-98 + AATCC Gray Scale.

Pass/Fail Mode

The SP60 stores up to 1,024 standards with tolerances for easy pass/fail measurement. A red/green LED indicator and the LCD display provide visual confirmation of results. A tone also sounds to indicate a fail result.

Quick Color Compare

An operator can take a quick measurement and comparison of two colors. This allows the operator to take quality-control readings in a time-efficient manner without having to create tolerances or store data.

The Sphere

The SP60's diffusing sphere is made of Spectralon®, a durable, highly reflective material designed to perform in a rigorous production environment. The diffusing material prevents premature degradation due to the flaking and chipping of the sphere wall material.

Opacity, Color Strength and Shade Sorting

The SP60 can measure opacity as well as three color-strength options: chromatic, apparent and tristimulus calculations. The SP60 also performs 555 shade sorting. These are important considerations in the color quality control of manufactured products involving plastic, painted or textile materials.

Texture and Gloss Influence

To determine the influence of the specular component, the SP60 allows simultaneous measurement of both specular-included (color) and specular-excluded (appearance).

User-Friendly Ergonomics

In addition to on-board programs to assist the operator in the measurement process, the instrument itself is highly user-friendly. It is compact and lightweight. A wrist strap and tactile side grips make it easy to hold. Read-outs are large and easy to see. A rechargeable battery pack allows extended operation of the instrument.

SPECIFICATIONS:

MEASURING GEOMETRICS

d/8°, DRS spectral engine, fixed aperture:
8mm measurement area
13mm target window

LIGHT SOURCE

Gas-filled tungsten lamp

ILLUMINANT TYPES

C, D50, D65, D75, A, F2, F7, F11 & F12

STANDARD OBSERVERS

2° & 10°

RECEIVER

Blue-enhanced silicon photodiodes

SPECTRAL RANGE

400 – 700nm

SPECTRAL INTERVAL

10nm – measured
10nm – output

STORAGE

1,024 standards with tolerances,
2,000 samples

MEASUREMENT RANGE

0 to 200% reflectance

MEASURING TIME

Approx. 2 seconds

INTER-INSTRUMENT AGREEMENT

CIE $L^*a^*b^*$:

Avg. 0.40 ΔE^*_{ab} based on avg.
of 12 BCRA Series II tiles
(specular component included)
Max. 0.60 ΔE^*_{ab} on any tile
(specular component included)

CMC equivalent:

Avg. 0.30 ΔE_{cmc} based on avg.
of 12 BCRA Series II tiles
(specular component included)
Max. 0.50 ΔE_{cmc} on any tile
(specular component included)

SHORT-TERM REPEATABILITY¹

.10 ΔE^*_{ab} on white ceramic
(Standard deviation)

LAMP LIFE

Approx. 500,000 measurements

POWER SUPPLY

Removable (Ni-metal hydride)
battery pack; 7.2 VDC rated
@ 1650 mAh.

AC ADAPTER REQUIREMENTS

90–130VAC, 50–60Hz, 15W max.

CHARGE TIME

Approx. 4 hours – 100% capacity

MEASUREMENTS PER CHARGE

1,000 measurements within
8-hour period

DISPLAY

128 x 256 pixel graphical LCD

OPERATING TEMPERATURE RANGE

50° to 104°F (10° to 40°C)
85% relative humidity maximum
(non-condensing)

STORAGE TEMPERATURE RANGE

-4° to 122°F (-20° to 50°C)

WEIGHT

2.4 lbs. (1.1 kg)

DIMENSIONS

4.3"H 3.3"W 7.7"L
(10.9 cm 8.4 cm 19.6 cm)

ACCESSORIES PROVIDED

Calibration standards, operation
manual, AC adapter, carrying case

OPTIONS

Optional remote battery charger
and replacement rechargeable
battery packs available

¹ Based on 20 measurements on a white tile.

* Specifications and design subject to change without notice. X-Rite standards are traceable to National Institute of Standards and Technology, Gaithersburg, Maryland, USA.



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