

elcometer® 6060-4 964 Portable 0-45 Spectrophotometer



The Elcometer 6060/4 has all of the functionality of the Elcometer 6060 plus tighter inter-instrument agreement and JOB capability. The JOB function is a programmed sequence of specific steps to assist the operator in the color measurement process. Up to six lines of specific instructions per measurement routine can be downloaded from X-Rite software and displayed on the LCD screen

Features of the 964:

- Lightweight, compact, portable instrument
- 0/45 optical geometry
- 0.15 ΔE^* ab inter-instrument agreement
- Interchangeable apertures for 4mm, 7mm or 15mm measurement area available
- Large, easy-to-read graphical LCD display
- JOBS and PROJECT operation modes
- Opacity and color strength measurement
- Reflectance curve graphics display
- Flip-back target shoe for flexible use
- Rugged construction
- Rechargeable battery for remote use

Features

Measuring Functions and Indices

The 964 provides absolute and difference measurements for the following colormetric systems. These values can be obtained from any of the nine illuminants with 2° or 10° observer angle: CIE XYZ, CIE Yxy, CIE LAB, Hunter LAB, CIE LCH, CMC and CIE94. Whiteness and Yellowness per ASTM E313-98, Metamerism Index and DIN 6172.

Special JOB and PROJECT Modes

The JOB function is a programmed sequence of specific steps to assist the operator in the color measurement process. Up to six lines of specific instructions per measurement routine can be downloaded from X-Rite software and displayed on the 964's LCD screen. Multiple color standards can also be collected under an identified PROJECT, a feature that supports corporate color standards programs.

Pass/Fail Mode

The 964 stores up to 1,024 standards with tolerances for easy pass/fail measurement. A red/green LED indicator and the instrument's LCD display provide visual confirmation of results. A tone also sounds to indicate a fail result and measurement completion.

Interchangeable Apertures

The internal apertures can be quickly changed for 4mm, 7mm or 15mm measurement areas. This allows the operator to change measurement area quickly and efficiently, depending on sample size.

Inter-Instrument Agreement

The 964 has superior inter-instrument agreement – essential in multiple instrument color-control programs. The 964 offers excellent inter-instrument agreement with X-Rite 968 0/45 spectrophotometer. Both input data into X-Rite line of Windows-based color quality assurance and color formulation software.

Opacity, Color Strength and Shade Sorting

The 964 can measure opacity as well as three color-strength options: chromatic, apparent and tri-stimulus calculations. The 964 also performs 555 shade sorting. These are important considerations in the color quality control of manufactured products involving plastics, painted or textile materials.

User-Friendly Ergonomics

A wrist strap and tactile side grips make the instrument easy to hold. Read-outs are large and easy to see. A rechargeable battery pack allows extended operation of the instrument.

Options include:

- Remote battery charger
- Rigs & Jigs (fixtures and accessories for standardized measurement of product samples)
- Replacement rechargeable battery packs
- Turnkey systems
- Quality Assurance and Control Software
- Color formulation software
- UV filter 968-61-08
- Extended service and support plan



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Technical Specifications

Measuring Geometrics	d/8°, DRS spectral engine, interchangeable apertures: 4mm measurement area / 6.5mm target window 7mm measurement area / 9mm target window 15mm measurement area / 21.5mm target window
Light Source	Gas-filled tungsten lamp
Illuminant Types	C, D50, D65, D75, A, F2, F7, F11 and F12
Standard Observers	2° and 10°
Detector	Blue-enhanced silicon photodiodes
Spectral Range	400 – 700nm
Spectral Interval	10nm – measured, 10nm – output
Storage	1,024 standards with tolerances, 2,000 samples
Inter-Instrument Agreement	7mm / 15mm <i>CIE L*a*b*</i> : Average 0.15 ΔE^*ab based on average of 12 BCRA Series II tiles (specular component included) 4mm <i>CIE L*a*b*</i> : Average 0.20 ΔE^*ab based on average of 12 BCRA Series II tiles (specular component included) Maximum 0.30 ΔE^*ab on any tile (specular component included) Maximum 0.40 ΔE^*ab on any tile (specular component included)
Short-Term Repeatability†	0.05 ΔE^*ab on white ceramic (standard deviation)
Measurement Range	0 to 200% reflectance
Measuring Time	Approx 2 seconds
Lamp Life	Approx 500,000 measurements
Power Supply	Removable (Ni-metal hydride) battery pack
AC Adapter Requirements	90 – 130VAC or 100 – 240VAC, 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
Data Interface	Patented bi-directional RS232, 300 – 57,000 baud
Operating Temperature Range	50° to 104°F (10 to 40°C)
Storage Temperature Range	85% Relative Humidity Maximum (non-condensing) -4° to 122°F (-20° to 50°C)
Weight	2.4lbs (1.1kg)
Dimensions	4.3" x 3.3" x 7.7" (109 x 84 x 196mm)
Supplied with	Calibration Standards, Operating Manual on CD Rom, AC Adapter and Hard-Sided Carrying Case

† Based on 20 measurements on a white tile.

Part Numbers

Model	Description	Part Number
Elcometer 6060/4	XRITE 964 Portable 0/45 Spectrophotometer - 4, 7 and 15mm	K0006060M004
Accessories	Remote Battery Charger	KT006075P001
	Replacement Rechargeable Battery Pack	K006075P002

