

# Portable Colorimetric and Near-Infrared Measurement



## Specialized for Security

The Datacolor 45IR provides a unique 3-in-1 solution for the formulation and quality control of security inks, secure documents and document authentication. A world class portable spectrometer, a VIS-NIR spectroscopic sensor and a densitometer; the Datacolor 45IR offers a powerful combination of performance and value. Ideal for color management, formulation and inspection in the printing of secure documents where color control is critical and fraud protection is very important.

## Specialized Precision, Uncompromising Performance

### SPECIFIC FUNCTIONALITY FOCUSED ON SECURITY

The Datacolor 45IR is uniquely qualified to fulfill the particular requirements of the security printing industry. Combining a spectral range of 380-1100 nm with the industry standard 3mm aperture and  $0^\circ:45^\circ$  geometry, this instrument is specifically designed to provide unparalleled quality control and formulation for the secure printing industry. In addition, instrument functionality provides industry critical Colorimetric, Near Infrared and Densitometric measurements – all in one instrument. The best in class performance provides state of the art repeatability and inter-instrument agreement ensuring total confidence in your answer.



## Ultimate Ease of Use

### THOUGHTFUL DESIGN

New lightweight, ergonomic design delivers enhanced ease of use. Patented measuring head ensures exact sample positioning, providing enhanced precision and inter-instrument agreement.

### EXTENSIVE FUNCTIONALITY

Comprehensive on board functionality, including: CIE  $L^*C^*h^*$ <sub>ab</sub>, CIE  $L^*u^*v^*$ , CIE  $L^*C^*h^*$ <sub>uv</sub>, CIE xyY,  $DE^*_{ab}$ ,  $\Delta E^*_{cmc}$ ,  $\Delta E^*_{94}$ ,  $\Delta E^*_{00}$ . Metamerism index, whiteness, yellowness, Pass-Fail tolerance and averaging. Display is a high resolution color, liquid crystal display for easy navigation and reading. USB connectivity for fast, seamless communications.

### EFFICIENT POWER MANAGEMENT

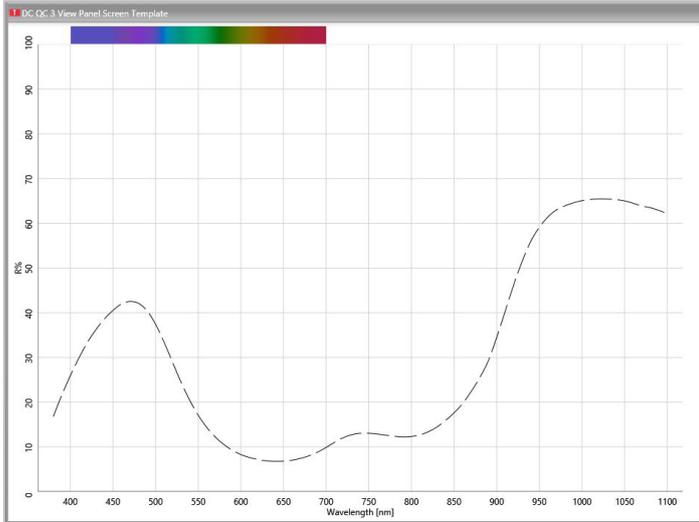
The powerful NiMH powered battery provides stable voltage discharge ensuring ~10,000 consistent measurements per charge.

### UNIQUE VALUE

The Datacolor 45IR combines state of the art precision specifically for the secure printing industry with the most powerful quality control software (Datacolor TOOLS) or formulation software (Datacolor MATCH<sup>PIGMENT</sup>) available.

# 45IR

## QUALITY CONTROL AND FORMULATION FOR SECURE DOCUMENTS



TECHNICAL SPECIFICATIONS	DESCRIPTION
Measuring Geometry	0°:45°x to DIN 5033
Light Source	Tungsten
Spectral Range	380 to 1100 nm
Effective Bandwidth	10nm
Wavelength Resolution	3.3nm
Spectrometer Principle	Monolithic compact spectrometer with imaging grating
Detector	256 pixel diode array
Repeatability	
Density	0.01 D
Colorimetric	0.03 CIELAB $\Delta E^*_{ab}$
Near IR	0.3 %R (700 to 1000 nm)
Inter-Instrument Agreement	
Density	0.01 D
Colorimetric	0.3 CIELAB $\Delta E^*_{ab}$
Near IR	+/- 0.5 %R (700 to 1000nm)
Aperture	3mm measuring
Battery	Rechargeable NiMH > 10,000 measurements/charge
Instrument Interface	USB 2.0
Storage	0 to 40°C

FUNCTIONAL DATA	DESCRIPTION
Color Systems	CIELAB, CIEXYZ, CIECh <sub>ab</sub> , CIELUV, CIECh <sub>uv</sub> , CIEYxy
Color Difference	CIELAB $\Delta E^*_{ab}$ , $\Delta E^*_{cmc}$ , $\Delta E^*_{94}$ , $\Delta E^*_{00}$
Data Plots	Remission Curve, CIE Color Circle
Metamerism Indices	$M_A$ , $M_C$ , $MD_{50}$ , $M_{F2}$ , $M_{F7}$ , $M_{F11}$
Indices	CIE Whiteness / ASTM D-1925 Yellowness
Densities	Densities CMYK, Density Graph
Calibration	Absolute
Illuminant	A, C, D50, D65, F02, F07, F11
Data Storage	100 standards and 1000 batches
Observer	2° & 10°
PASS/FAIL	Tolerance 0.1 to 20.0 units
Density Filter	DIN, DIN NB, ISO 1, ISO T, ISO E.
Delta Mode	On-Off

PHYSICAL SPECIFICATIONS	DESCRIPTION
Dimensions	2.6 x 2.2 x 7.5 inches (65 x 55 x 190 mm)
Weight	1.0 lbs (480 g)
Display	Color LC backlight display, 320 x 240 pixels
Comes Complete With	Datacolor 45IR Spectrophotometer – NIR – Densitometer Calibration Certificate Datacolor TOOLS Plus or MATCH Pigment Plus software USB Mini to USB Cable Charging console with white standard Datacolor Users Guide USB Drive with software service

For more information, please visit [www.datacolor.com/45IR](http://www.datacolor.com/45IR)

### STANDALONE SYSTEM REQUIREMENTS

System Requirements: Intel I3 processor or higher; 4 GB RAM; 500 GB HDD; 17" Monitor at 1280x720 resolution; 128 MB true graphics card; CD drive; USB/Serial Port  
Windows 7, Windows 8 and Windows Server 2008