

# SPECIFICATIONS

# Agera<sup>®</sup>

Patent #US 11,002,676 B2

## MEASUREMENT

<b>Measurement Principle:</b>	Dual-beam Reflectance Spectrophotometer / Glossmeter
<b>Geometry Color:</b>	0°/45°c (circumferential) ASTM E1164
<b>Gloss:</b>	60°
<b>Measurement Method:</b>	Port up or Port forward
<b>Read Time:</b>	< 3 sec.
<b>Image Capture:</b>	High-resolution, D65 illuminated, 45°/0° image viewing, image capture and image recall
<b>Area Measured:</b>	<b>Color:</b> XLAV - 51 mm (2 in), LAV - 25.4 mm (1 in), MAV - 15.9 mm (5/8 in) <b>Gloss:</b> 8 mm (5/16 in)

## TECHNICAL

<b>Illumination Range:</b>	360 nm - 700 nm
<b>Detection Range:</b>	400 nm - 700 nm
<b>Specular Component:</b>	Excluded
<b>Spectral Resolution:</b>	< 3 nm
<b>Effective Bandwidth:</b>	10 nm equivalent triangular
<b>Reporting Interval:</b>	10 nm
<b>Photometric Range:</b>	0 to 150 %
<b>UV Control:</b>	UV Included and UV Excluded with automated comparative data viewing and reporting. Factory calibrated with user option to calibrate to their specific fluorescent standard.
<b>Light Source:</b>	Full spectrum, balanced LED array
<b>LED Life:</b>	5 years typical
<b>Spectrophotometer:</b>	Sealed optics; 256-element diode array; high resolution concave holographic grating

## PERFORMANCE

<b>Inter-Instrument Agreement:</b>	<b>Color:</b> $\Delta E_{2000} < 0.20$ CIE L*a*b* (Avg) on CCSII (CERAM) Tile Set <b>Gloss:</b> 0 - 100 $\leq 0.5$ GU
<b>Repeatability:</b>	<b>Color:</b> $\Delta E_{2000} < 0.03$ CIE L*a*b* (Max) on white tile <b>Gloss:</b> 0 - 100 GU: $\leq 0.1$ GU

## USER INTERFACE

<b>Data Views:</b>	EZ View, Color Data Table, Color Plot, Spectral Data, Spectral Plot, Trend Plot
<b>Other Features:</b>	Pass/Fail color indication, time and date stamp, auto-naming, auto-saving, data backup and recovery
<b>Indices and Metrics:</b>	E313 Whiteness Index, Tint, E313 Yellowness Index, D1925 Yellowness Index, Y Brightness, Z%, 457 nm Brightness, Baking Contrast Units, HCCI, SCCA, ASTM E1349, Gloss: ASTM D523, ASTM D2457, ISO 2813, ISO 7668, JIS Z 8741
<b>Color Scales:</b>	CIE L*a*b*, Hunter Lab, CIE L*C*h, CIE Yxy, CIE XYZ
<b>Color Difference Scales:</b>	$\Delta L^*a^*b^*$ , $\Delta Lab$ , $\Delta L^*C^*h$ , $\Delta Yxy$ , $\Delta XYZ$
<b>Color Difference Indices:</b>	$\Delta E^*$ , $\Delta E$ , $\Delta C^*$ , $\Delta E$ CMC, $\Delta E$ 2000
<b>Data Storage:</b>	8 GB (> 1 million data records with images)
<b>Illuminants:</b>	A, C, D50, D55, D65, D75, F02, F07, F11
<b>Observers:</b>	2° and 10°
<b>Languages:</b>	English, Japanese (German and Simplified Chinese coming soon)
<b>External PC Software:</b>	Compatible with HunterLab EasyMatch QC and EasyMatch QC-Electronic Records Quality Control Software

## COMMUNICATIONS I/O

<b>USB OTG:</b>	Connectivity to printer, keyboard, mouse
<b>Front Panel USB:</b>	2.0 bidirectional, data export/import via thumb drive
<b>Ethernet RJ45:</b>	Print directly to standalone or network printers Email directly from the instrument Stream data to LIMS and SPC systems
<b>External Inputs:</b>	Remote Footswitch or similar closed contact switching device
<b>Remote Access Support:</b>	Enabled via internet-based support tool

## PHYSICAL / ELECTRICAL

<b>Sensor Dimensions:</b>	Height: 28 cm (11 in) Width: 22 cm (8.75 in) Depth: 31 cm (12.25 in) Weight: 6.35 kg (14 lb)
<b>Display:</b>	Capacitive touch screen, high-resolution color, 17.8 cm (7 in), 1280 x 800
<b>Power:</b>	Input: 100 to 240 VAC, 47 to 63 Hz to universal power supply @ 24 VDC (3.75A 90W)
<b>Operating Environment:</b>	4° to 38° C (40° to 100° F), 10 % to 85 % RH, noncondensing
<b>Storage Environment:</b>	-20° to 65° C (-5° to 150° F), 10 % to 90 % RH, noncondensing
<b>System Components:</b>	<ul style="list-style-type: none"><li>• Agera sensor • XLAV - 51 mm (2 in), LAV - 25.4 mm (1 in), MAV 15.9 mm (5/8 in) port plates • Calibrated white tile (NIST Certificate of Traceability)</li><li>• Calibrated black glass standard used for both color and gloss standardization (ASTM D523, ISO 2813 Certificates of Traceability)</li><li>• Green diagnostic tile • 100V - 240V universal power supply</li><li>• Agera Quick Start Guide • Agera User's Guide on CD</li></ul>

For more information, please contact HunterLab at 703-471-6870, [sales@hunterlab.com](mailto:sales@hunterlab.com) or visit [www.hunterlab.com](http://www.hunterlab.com)