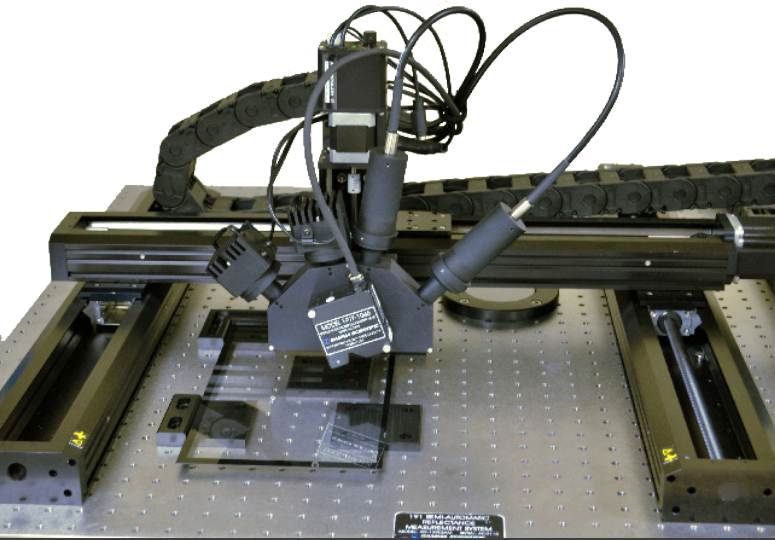


GS-191SA-1045 Semi-Auto Reflectance Measurement System



The GS-191SA-1045 is a manually loaded gonio-reflectance measurement system that automatically captures complete spectral & colorimetric properties for coated glass, polished substrates or diffuse surfaces at 0° and 45° angle of incidence simultaneously, without requiring second-surface masking. Substrates as thin as 500 μm can be tested with typical scan times of 200 msec per measurement point.

Based on high precision spectroradiometric instrumentation, proprietary measurement techniques and expertise in low-light measurement technology developed by Gamma Scientific, the product range features industry-leading accuracy, repeatability and throughput, including both refractive index determination and thin film coating thickness.

Highly Accurate & Repeatable Reflection Measurements

- Nondestructively capture complete spectral and colorimetric properties with scan times as short as 200 msec per measurement point
- Isolated first-surface measurement of thin glass substrates down to 500 μm in thickness without requiring second-surface masking
- Measure total reflectance or isolate internal optical interfaces
- Test capability for diffuse or specular surfaces
- Programmable, multi-location measurement, pass/fail criteria settings and binning capabilities
- Configuration options including handheld, semi-automatic and fully automatic rotary systems with robotic loading

Key Application Areas

Anti-reflectance coating characterization

Flat-panel display glass testing

Touchscreen display glass testing

Optical filter / lens testing

Pyrolytic glass coating test & characterization

Flat panel displays, photovoltaic coatings, low-E architectural coatings, paint samples, diffuse plastics

In addition to our exceptional technical and functional capabilities, Gamma Scientific is ISO/IEC 17025 accredited by NVLAP (NVLAP lab code 200823-0).

| Optical Specifications | | |
|--|---|---|
| 191 Optical Head (Optional Geometries of 0° and 20°) | 10 Degree Angle of Incidence | 45 Degree Angle of Incidence |
| Measurement Time | First surface specular reflection | First surface specular reflection |
| Sample Types | Glass | Glass |
| Illumination Angle | 10° | 45° |
| Viewing Angle | 10° | 45° |
| Maximum Sample Thickness (first-surface reflectance only) | 0.5 mm (transparent samples) | 0.25 mm (transparent samples) |
| Maximum Sample Thickness | 6 mm | 6 mm |
| Maximum Sample Size | 400 mm x 350 mm | 400 mm x 350 mm |
| Spectral Range | 360 to 830 nm | 360 to 830 nm |
| Illumination Spot Size (sample area) | 1 mm x 10 μm | 1 mm x 10 μm |
| Measurement Speed (typical) | < 1500 msec | < 1500 msec |
| Calibration Reference Standard | Integral BK-7 polished glass | Integral BK-7 polished glass |
| Spectral Reflectance | ± 0.5% | ± 0.5% |
| Tristimulus (CIE 1931 X,Y,Z) | ± 0.05 | ± 0.10 |
| Chromaticity (CIE 1931 x,y) | ± 0.005 | ± 0.005 |
| LAB Color (CIE 1976 L*, a*, b*) | L ± 2.0 a*, b* ± 0.8 | L ± 2.0 a*, b* ± 0.8 |
| Average Reflectance | ± 0.2 | ± 0.2 |

| System Specifications | | | |
|--|--|---|--|
| 191 Optical Head | 191F-1045 Dual Angle Optics | | |
| Measurement Program Types (all measured @ 10° & 45° simultaneously) | 5 selectable program types, individually configurable for up to 10 different panel sizes: 40-point grid; 25-point grid; 5-point cross, 3-point diagonal; single-point | | |
| Measurement Locations | Position coordinates can be individually set for 10 panel sizes with 1 mm resolution Default grid 10 mm from each edge with equal settings between corner locations | | |
| Cycle Time | Program dependent, each measurement point approximately 1,500 msec | | |
| Spectral Data | Reflectance as a function of wavelength | | |
| Colorimetric Data | Tristimulus 1931 X,Y,Z CIE 1976 L*, a*, b* | Tristimulus 1964 X,Y,Z CIE 1976 L*, u*, v* | CIE 1931 x,y |
| System Dimensions | 1.25 meters H x 1.0 meters W x 1.0 meters D | Weight 300 kg | |
| Operating Ranges | Ambient Temperature 0 to 35°C | | Relative Humidity < 90% non-condensing |

Specifications are subject to change without notice.

Optional configurations include handheld devices and fully automatic systems with robotic loading. Custom measurement angle of incidence is also available on request.

