HalfMoon® Light Measurement Systems

Efficient forward flux measurement method in half the footprint

**VALUE**
Larger forward flux emitting light engines measured with half of the footprint of a regular integrating sphere system
Lamp standard of forward flux minimizes substitution errors between the lamp standard and DUT
Radiometric, photometric and colorimetric characterization capabilities
Easy mounting capabilities for DUTs
Spectraflect® coated hemisphere
Out of the box operation
User friendly control software
Backed by ISO 9001:2000 Registered Quality Management System

**APPLICATIONS**
LEDs
LED light engines
SSL fixtures
Displays

**Practical**
This intuitively designed system allows for the same accurate, repeatable results as a traditional integrating sphere system in half the footprint. Designed to measure forward emitting lamps, LEDs, board mounted and heat-sinked LED Light Engines for Solid State Lighting (SSL), the HalfMoon System features a Spectraflect® coated hemisphere capped with an interior mirrored surface. This mirrored surface creates a virtual integrating sphere within the interior. A centrally placed port in the mirrored surface allows for the Device Under Test (DUT) to be internally mounted in the center of the virtual sphere while keeping the electrical and thermal controls of the DUT outside, reducing absorption errors that can occur in a traditional sphere based system.

**Fast and accurate**
With the MtrX-SPEC Spectral Light Measurement Software, and CDS 1100/2100, Labsphere’s HalfMoon Systems offer users fast repeatable results. The CDS 1100/2100 spectrometers offer low noise, high dynamic range and a choice of broad spectral ranges through the UV-VIS-NIR with unparalleled ease of use. The NIST traceable calibration and validation for 2p spectral flux, lumens, electrical, and color characterization of the DUT are able to be done with minimal process tooling.

These results help increase the rate of product development, decrease time to market and reduce development costs.

**Simple**
The central mounting of the HalfMoon sphere allows for users to easily mount the lamp in the center of the sphere with the lamp driving device remaining on the outside of the sphere, reducing absorption errors. The center mounting combined with the internal mirrored surface allows for symmetrical light distribution by the specular image minimizing integrating error within the sphere. The hemispherical design of the HalfMoon system also allows for a smaller footprint being only half the size of a traditional integrating sphere system.

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## Specifications

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<th>Model and Description</th>
<th>HMS-4011</th>
<th>HMS-4021</th>
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<th>System Includes</th>
<th>40 inch</th>
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<td>HalfMoon Sphere, HM-400-SF</td>
<td>AS-02780-400</td>
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<td>Preset Power Supply, LPS-100-0833</td>
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<td>Calibrated Forward Spectral Flux Standard</td>
<td>AS-02768-200</td>
<td>AS-02768-200</td>
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<td>CCD Array Spectrometer, CDS 1100 or CDS 2100</td>
<td>AS-02746-100</td>
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<td>100 W Absorption Correction Lamp, AUX-100</td>
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| Sold Separately | MtrX-SPEC Spectral Light Measurement Software | MtrX-SPEC |

### Product Properties and Performance

#### HalfMoon Sphere
- **40 inch (1.02 m)**
- Coating Reflectance: 98%
- Radiometric Range: 500 W (max)
- Photometric Range: 5 lm - 111111 lm
- Red LED Range: 1 lm - 18611 lm
- Green LED Range: 2.98 lm - 66389 lm
- Blue LED Range: 1.22 lm - 27222 lm
- Spectral Range: 350 - 850 nm
- Max Recommended DUT Dimension: 13 x 13 in (33 x 33 cm)

#### Spectrometer
- **CDS 1100**
  - Detector: TE Cooled 1044 x 64 CCD (back thinned)
  - Spectral Range: 250 - 850 nm
  - Resolution: 1.5 FWHM
  - Integration Time: 8 ms – 60 s
  - Cooling: 10 +/- 0.05 C
  - TE Temp Drift: +/- 0.5%
  - Wavelength Accuracy: < +/- 0.4 nm
  - Stray Light Broadband: <10^4 at 600 nm
  - Stray Light LED/Laser: <10^5 at 500 nm
  - Focal Length: 100 mm
  - Optical Input: 600 mm, 3 m long (SMA Connection)
  - Speed: 0.1 scans /sec
  - Dynamic Range: Single Scan 30000:1
  - Spectral Sample Interval: 0.25 nm
  - Mechanical Shutter: Yes
  - AD Converter: 16 bit
  - PC Interface: USB 2.0
  - Trigger: 11.3 lbs (5.04 kg)
  - Dimensions: (W x D x H) 8.3 x 10.5 x 3.5 in (21.1 x 26.7 x 8.9 cm)

#### Lamp Standard
- **FFS-100-1000**
  - Lamp Current: 8.333
  - Approximate Luminous Flux: 1000 lm
  - Rated Life: 2000 hrs
  - Rated Voltage: 12 V

#### Power Supply
- **LPS-100-0833, 8.33 A, 100 W**
  - Power Requirements: 110/220 VAC, 50/60 Hz
  - Current Stability: 0.1%
  - Current Rise Time: 20 s
  - Regulated Current: 8.33 A +/- 0.1%
  - Weight: 8.3 x 10.5 x 3.5 in (21.1 x 26.7 x 8.9 cm)
  - Compliance: CE

*With custom adapter*