Integrating Sphere
## Catalogue 2023/II

# INTEGRATING HEMISPHERE SPECTRORADIOMETER

MEASUREMENT PARAMETERS

- ✓ Hemispherical light measurements (2π)

- ✓ Total luminous flux and efficacy

- ✓ Total spectral radiant flux

- ✓ Correlated color temperature CCT (K)

- ✓ Color rendering index CRI

- ✓ Color fidelity index Rf and gamut index Rg according to TM30-18

- ✓ Color coordinates CIE1931 xy, CIE 1960 uv, CIE1976 u'v'

- ✓ Peak wavelengths of (multi-)LED sources

- ✓ Wavelength bandwidths

- ✓ Flicker according to IEEE 1789

- ✓ Pst LM and SVM flicker
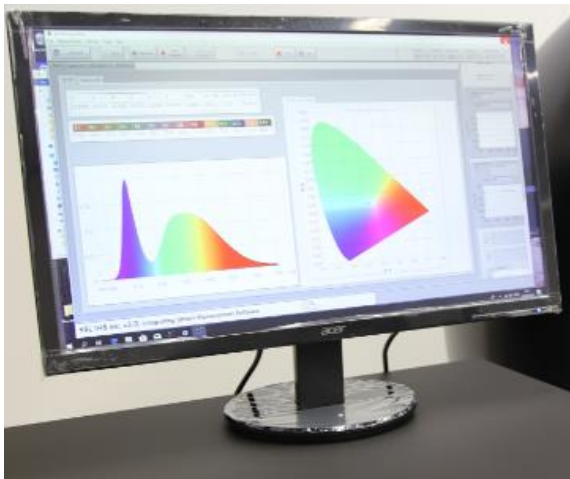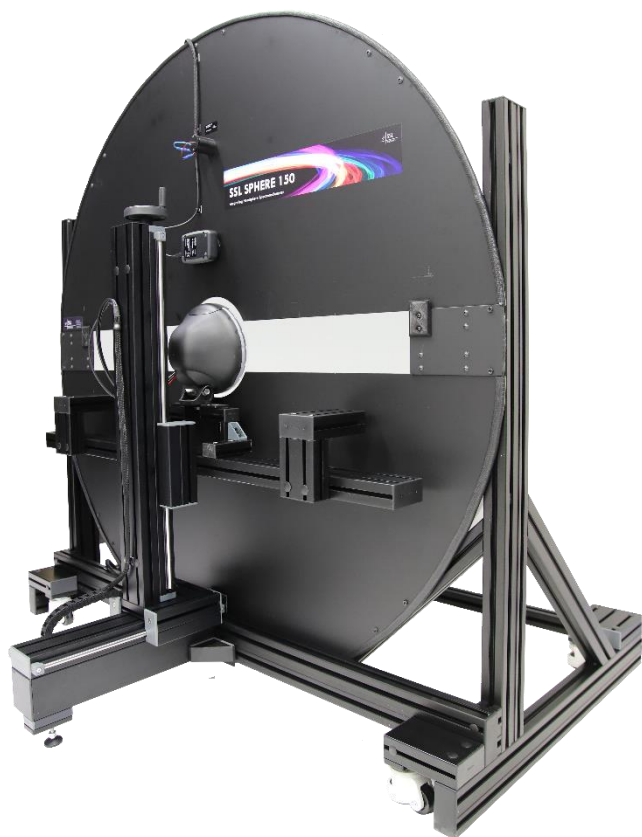
Measurement of Round light.
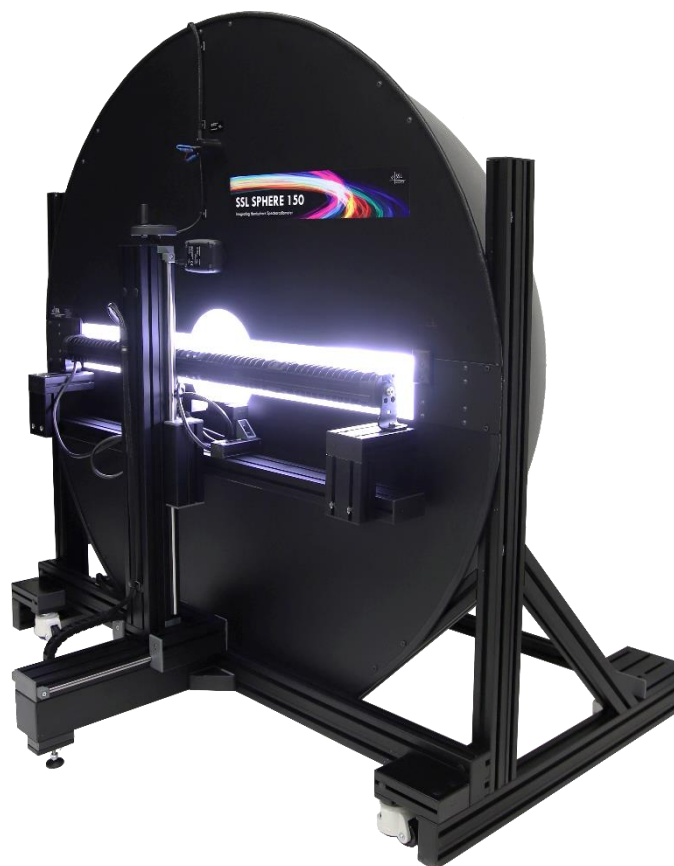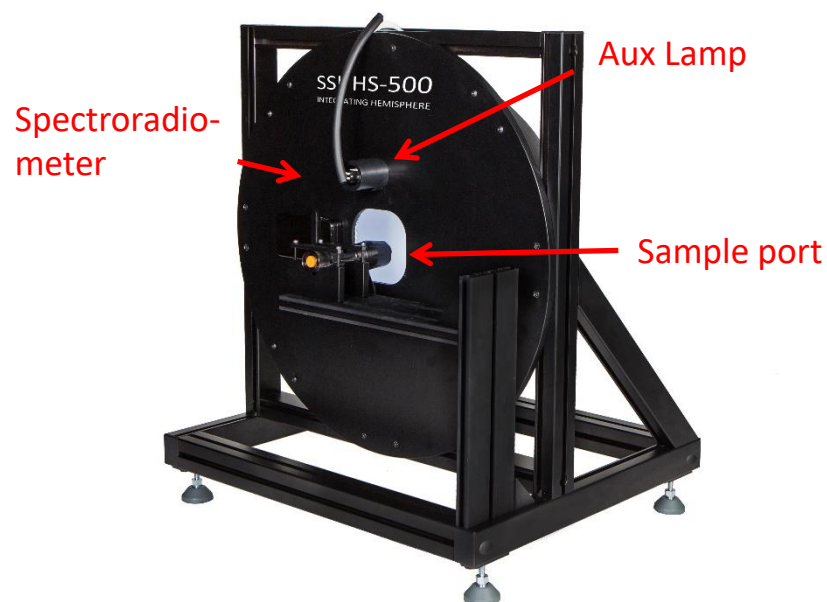

Measurement of Linear light

Product		SPHERE 5 F	SPHERE 15	SPHERE 50	SPHERE 100	SPHERE 150	SPHERE 175
Diameter (mm)		5	150	500	1000	1500	1750
Sample port (mm)	Round	9	26	90	170	250	300
	Rectangular	NA	10 x 120	40 x 400	80 x 800	120 x 1200	140 x 1400

Spectroradio-meter

Aux Lamp

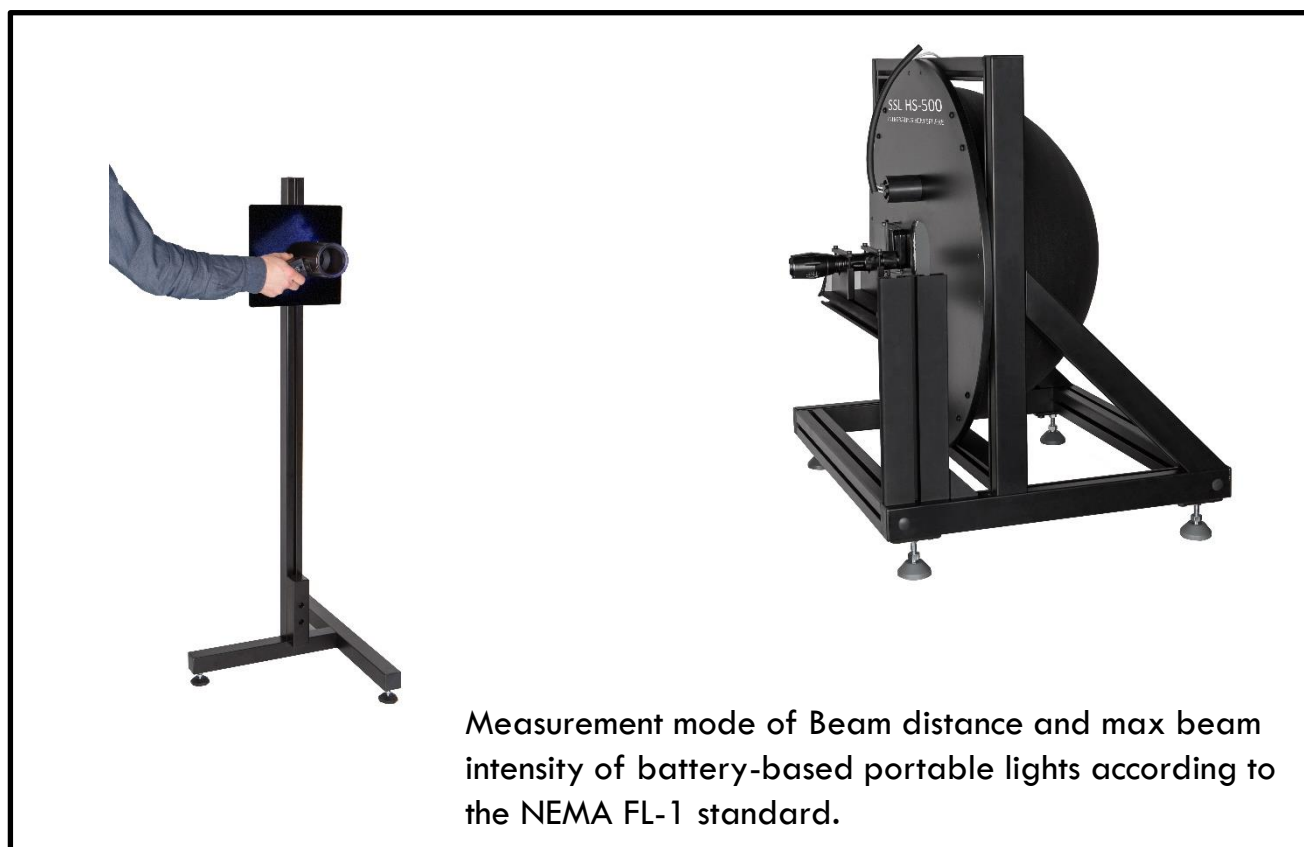Sample port

Measurement mode of luminous flux and runtime
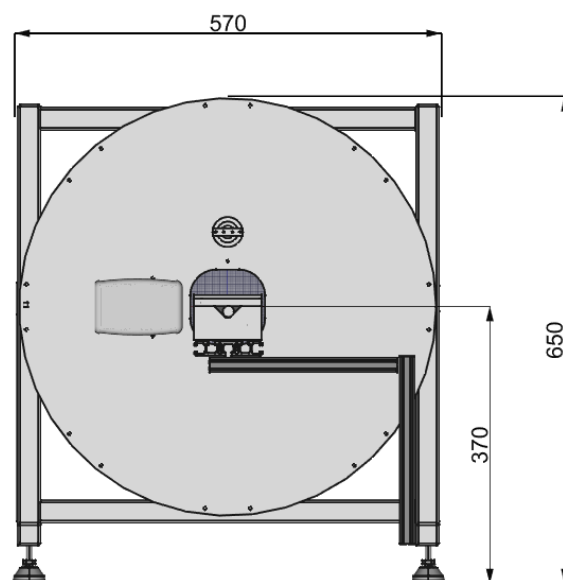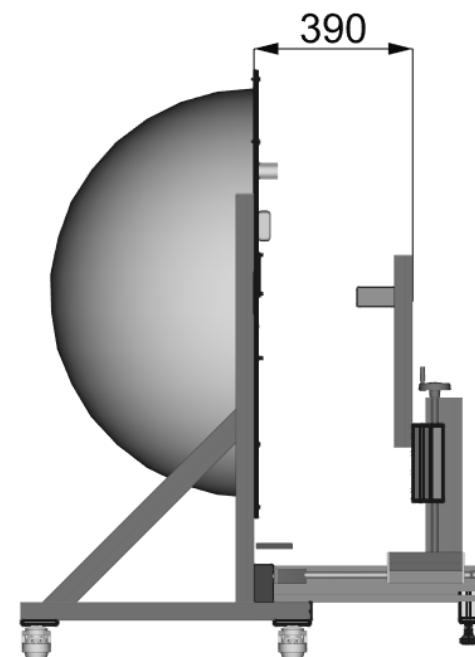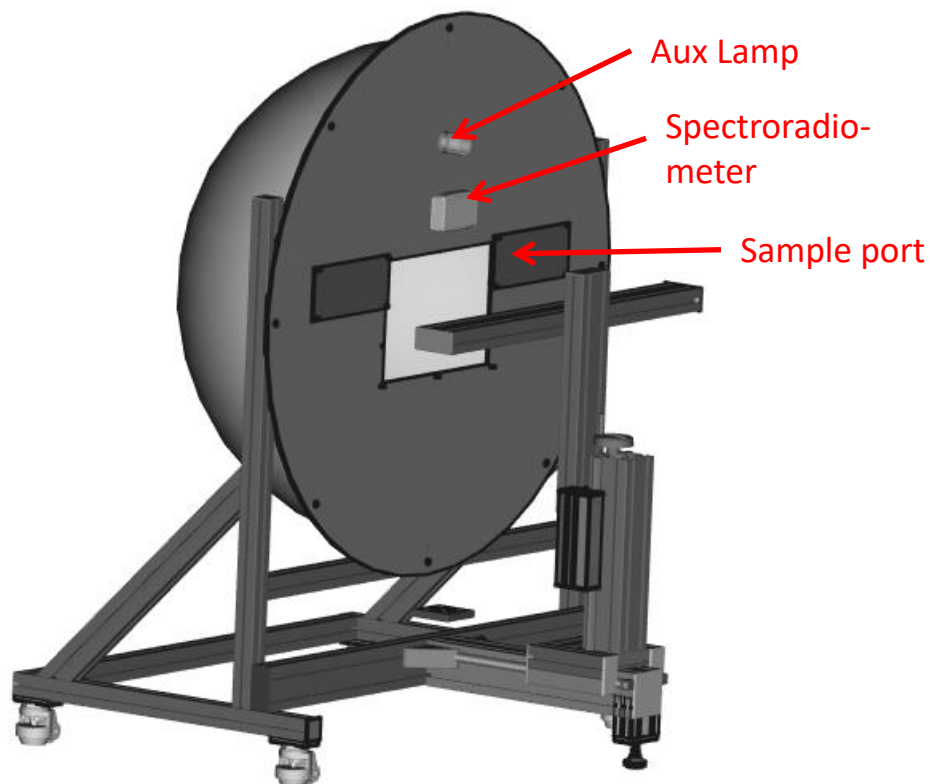
Dimensions of rectangular sample port: 90 x 90 mm
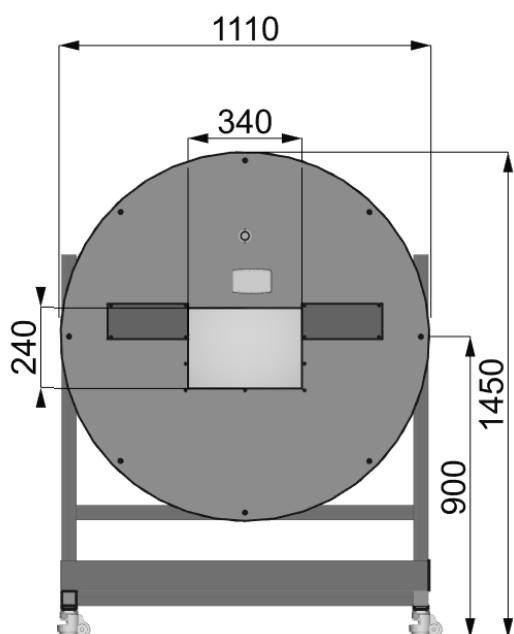
Measurement mode of Beam distance and max beam intensity of battery-based portable lights according to the NEMA FL-1 standard.
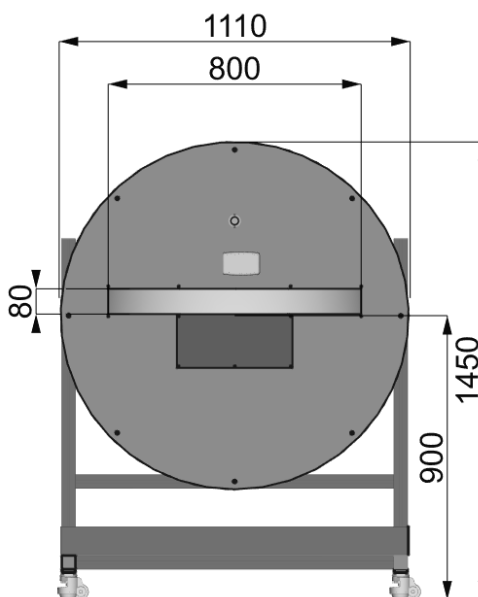
Aux Lamp

Spectroradio-meter

Sample port

390

Adjustment range for sample

1110

340

240

900

1450

Rectangular sample port

1110

800

80

900

1450

Linear sample port

1450

720
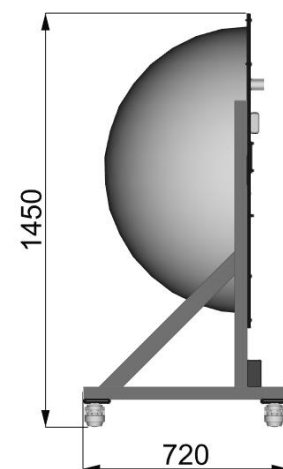
Transportation dimensions

Product Code	SSL IHS-1000	
Application area	General lighting sources and automotive lighting sources with hemispherical light output	
Height, Width, and Length	1.2 m, 1.2 m, 1.5 m, 60 kg	
Sphere inner diameter	100 cm	
Material	Aluminum with BaSO4 coating	
Height of optical axis	Approximately 90 cm	
Test port opening (Max size of luminous area of DUT)	Option 1. 80cm x 8 cm Option 2. 24cm x 34cm Other: please contact us for customization	
Auxiliary light source	LED	
Spectrometer	**SSL SPEKTRI 80**	**S-680.VRW 5nm**
Wavelength range	380 – 780 nm	350 – 1050 nm
Wavelength bandwidth	9-11 nm	3-5 nm
Luminous flux measurement range	5 – 50 000 lm	5 – 350 000 lm

Can be customized
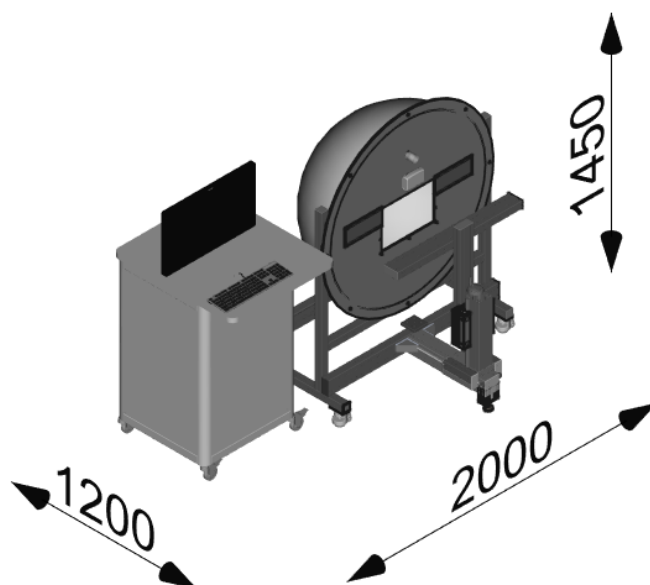
INTEGRATING HEMISPHERE
SSL **SPHERE 100.ver**

- ✓ 1m hemisphere (BaSO4 coating)

- ✓ Castors with adjustable feet

- ✓ Equipment shelf

- ✓ 2-axis sample holder

- ✓ Motorized vertical axis: trapezoid screw with stepper motors and software control, handwheel

- ✓ Motorized Horizontal axis (depth direction): SBI rail, ball screw and stepper motors

- ✓ Manual Horizontal axis (width direction): Al profile slot

Aux Lamp

Spectroradio-meter

Sample port

Adjustment range for sample
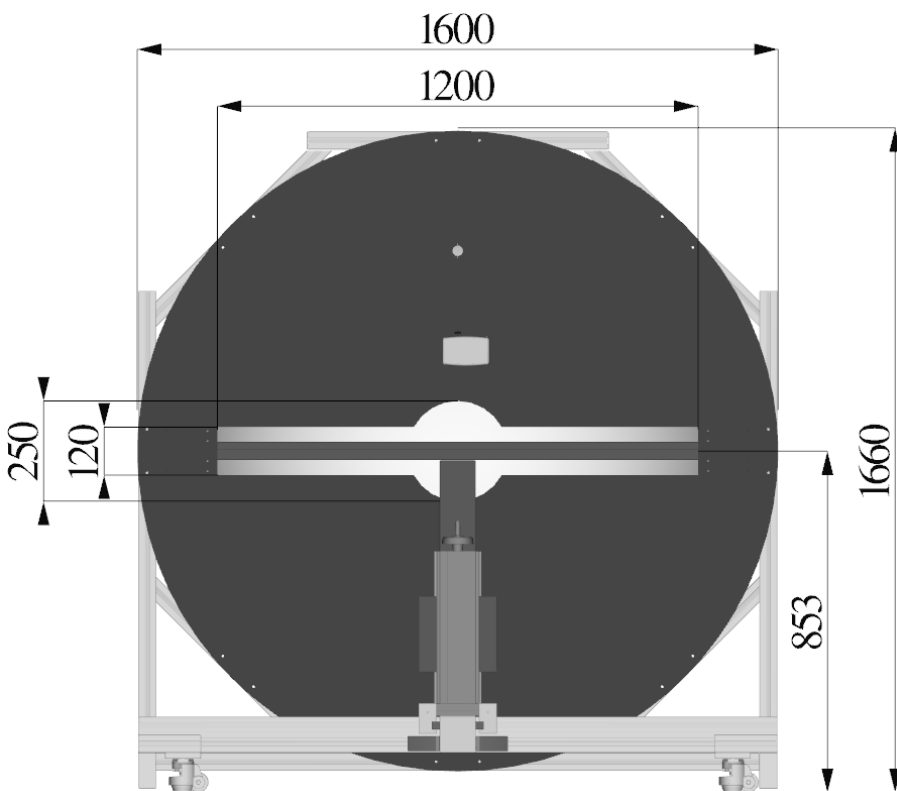
Dimensions of sample port and total width.
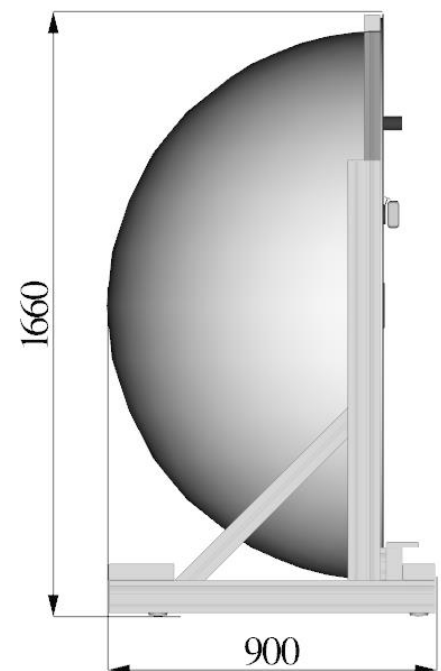
Transportation dimensions

Product Code	SSL IHS-1500	
Application area	General lighting sources and automotive lighting sources with hemispherical light output	
Electrical device integration	The measurement carrier includes electrical device rack holder. The rack holder is of size 19" rack integration with unoccupied 8U space for AC/DC power supply / meter)	
Height, Width, and Length	1.7 m, 1.3 m, 1.6 m, 120 kg	
Sphere inner diameter	150 cm	
Material	Aluminum with BaSO4 coating	
Height of optical axis	Approximately 85 cm	
Test port opening (Max size of luminous area of DUT)	Option 1. 120cm x 12 cm, / r = 250mm Option 2. 45cm x 45cm Other: please contact us for customization	
Auxiliary light source	LED	
Spectrometer	**SSL SPEKTRI 80**	**S-680.VRW 5nm**
Wavelength range	380 – 780 nm	320 – 1050 nm
Wavelength bandwidth	9-11 nm	3-5 nm
Luminous flux measurement range	10 – 100 000 lm	10 – 700 000 lm

1.7 m

2.3 m

1.3 m
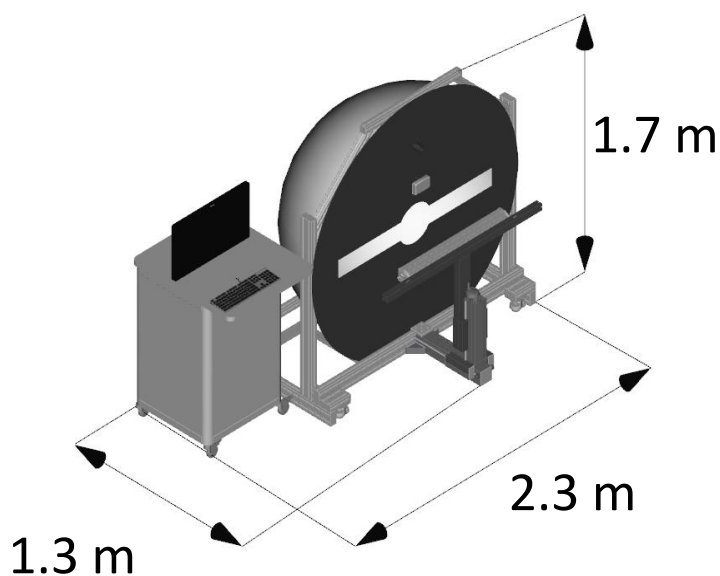
Luminous flux meter
SSL **SPHERE 5 F**

TEST SYSTEM for Single LEDs and Miniature Light Sources

SPHERE 5 F dimensions

Product Code	SSL IS-50			
Application area	Spectral radiant flux, luminous flux			
Dimensions	59mm, 56mm, 56mm, 185 g			
Sphere inner diameter	5 cm			
Surface coating	$BaSO_4$ (inner surface), Black (outer surface)			
Test port opening	9 mm			
Auxiliary light source (optional)	integrated into S-90.Adv (standard) S-80.Phi: External light source with bifurcated optical fiber			
Spectroradiometer	Compatible with SPEKTRI 80/90 models.			
Wavelength range	380 – 780 nm			
Bandwidth	9-11 nm			
Luminous flux range (lm)	S-80.PAR	S-80.Color	S-90.Lab	S-90.Probe
	0.3 – 450	0.1 – 200	0.5 – 200	20 – 8 000
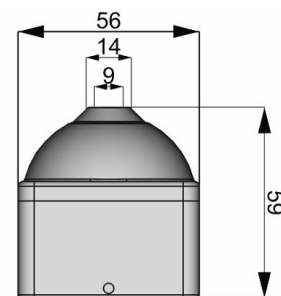
SPHERE 5 F with fiber optic

SPHERE 5 F with SPEKTRI 80 & Android app

SPHERE 5 F with S-90.Lab

FULL SPHERES – SPHERE xxx F

Product name	SPHERE 30 F	SPHERE 50 F	SPHERE 100 F	SPHERE 150 F	SPHERE 200 F
Product code	IS-300	IS-500	IS-1000	IS-1500	IS-2000
Width x Depth, Height	42 cm x 31 cm, 44 cm, 13 kg	65 cm x 51 cm, 73 cm, 30 kg	1.3 m, 1.1 m, 1.5 m, 80 kg	1.9 m, 1.6 m, 1.82 m, 130 kg Opening size: 2.6 m x 2.6 m	2.3 m x 2.1 m, 2.4 m, 180 kg Opening size: 3.3 m x 3.4 m
Sphere inner diameter	30 cm	50 cm	100 cm	150 cm	200 cm
Material	Aluminum with $BaSO_4$ coating				
Height of optical axis	~25 cm	~43 cm	~94 cm	~98 cm	~130 cm
2pi port diameter	50mm	100mm	170mm	380mm	700mm
4pi port	internal plate 55mm x 70mm		internal plate 300mm x 400mm		
Auxiliary light source	LED				
Spectrometer	**SPEKTRI 80**		**S-680.VRW 5nm**		
Wavelength range	380 – 780 nm		350 – 1050 nm		
Wavelength bandwidth	9-11 nm		3-5 nm		

19" rack holder with Computer container and table for display
- 8U space for positioning all required power supplies
- Shelf for computer
- Lockable wheels
- Size: 78 cm x 67 cm x 103 cm
- Weight: 24 kg
- Total weight with DC power supply, computer and display approximately ~47 kg

Calibration Light Source

DEVICE CODE	SSL LS LED90a.Phi_e
Luminous intensity (cd)	350 cd
Total Flux (lm)	1000 lm
Total optical power (W)	5
Input current (A)	0.7
Input power (W)	17
Stabilization time (min)	30 min
Spectrum	see below
Dimensions (W x D x H, m)	196x195x50
Calibration quantity	Total Spectral Radiant Flux (W/nm) Luminous flux (lm)
Wavelength range	380-780 nm
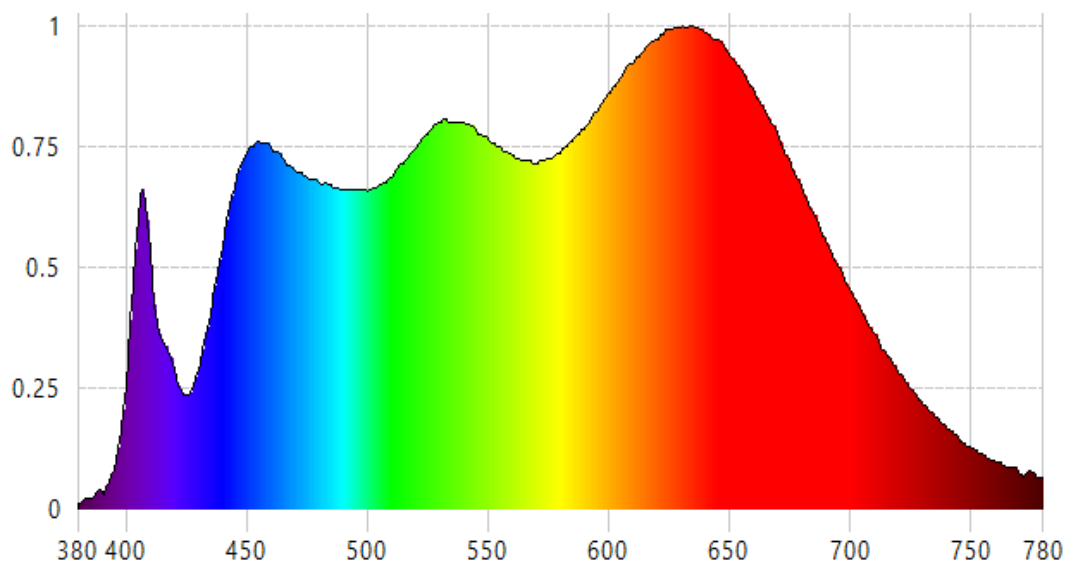
ORDERING INFORMATION

HEMISPHERES	
SSL SPHERE 15	Integrating hemisphere spectroradiometer testing system. Includes the hemisphere, AUX LED with USB controller, Detector port.
SSL SPHERE 50	
SSL SPHERE 100	Integrating hemisphere spectroradiometer testing system. Includes the hemisphere with 2-axis sample holder (vertical axis with a lead screw and handwheel) AUX LED with USB controller, Detector port.
SSL SPHERE 150	
SSL SPHERE 175	
SSL SPHERE 100.ver	Integrating hemisphere spectroradiometer testing system. Includes the hemisphere, AUX LED with USB controller, Detector port. Motorized 2-axis sample holder. Device rack shelf integrated.

FULL SPHERES	
SSL SPHERE 5 F	50mm handheld integrating sphere with 2pi port.
SPHERE 30 F	Integrating hemisphere spectroradiometer testing system. Includes the full sphere with 2pi and 4pi ports, AUX LED with USB controller, Detector port.
SPHERE 50 F	
SPHERE 100 F	
SPHERE 150 F	
SPHERE 200 F	

SOFTWARES	
SSL SRM.IS sw	Spectral test software for CRI, CCT, lumens, spectrum, TM30-18, peak/eff WL, WL bandwidth, PAR/PPF, Color class, SDCM... Automated software routines for sphere spectral/level calibration, and for spectral self-reflection/absorption correction factor test of the sample

SPECTRORADIOMETERS (examples below)	
SSL S-90.Lab	SPEKTRI 90, Laboratory spectroradiometer. Popular for SPHERE 5 F.
SSL S-80.USB	SPEKTRI 80 spectroradiometer. Entrance optics can be modified to meet the lumen measurement range.
SSL S-80.Phi	SPEKTRI 80, Lumen spectroradiometer with bifurcated fiber and external USB powered AUX LED light source.
S-680.VRW	SP spectroradiometer. Wavelength range 350-1050nm. USB readout, optical bandwidth 3-5nm

Options	
SSL SRM.Flicker-2	Add-on Flicker package, includes Flicker software tool of SRM.IS sw, L-50 photocurrent meter, LH22.2-f10 measuring head, dual branch fiber compatible with S-680, S-80 and LH measuring heads.
SSL FL1 add-on	Includes Add-on sw tool for photometric performance of Flash Lights (NEMA FL-1 standard) and FL-1 tripod. Compatible with the SPHERE 50.
SSL RACK-2	19" rack table for computer and display, 8U space for power supplies, Lockable wheels
SSL-PC	Measurement computer with needed communication cards and installation work (drivers and software)

Power meter and power sources	
Several AC power meters and supplies integrated. Ask model to be quoted.	

Standard lamps with traceable calibration certificates	
SSL LS LED90a.Phi_e	Calibration lamp for total spectral radiant flux, 1000lm, 17W. LED. 380-780 nm.
SSL LS HAL50a.Phi	Calibration lamp for relative spectral radiant flux. 500 lm, 50W. Halogen GU5.3. 340-1050 nm.

Others	
SSL-service	Sphere system first installation and basic training including example measurements on customer site (1 days)