

# TURNING LUMINAIRE GONIOMETER FAMILY SSL LUMI

## ALL INCLUSIVE MEASUREMENT SYSTEM

- ✓ Accurate characterization of spatial photometric, colorimetric and spectrometric features of luminaires by C or B type goniophotometer
- ✓ Luminous flux and efficacy
- ✓ Input power and power factor
- ✓ Spatial color uniformity (SDCM)
- ✓ Total correlated color temperature (CCT), color rendering index (CRI) and spectral radiant flux distribution
- ✓ Camera based UGR measurements



## SAVE TIME, SPACE AND MONEY

- ✓ Fast sample mounting by a motorized sample holder and remote control
- ✓ Automatic luminous area measurements and turning axis adjustment
- ✓ Reliable LDT/IES measurements in standard height rooms
- ✓ User-friendly and versatile test software
- ✓ Sample holders, installation and training service, etc.
- ✓ Fast colorimetric measurements

**Solution for testing any size of luminaires for general lighting, street lighting or automotive lighting.**



**B Type Measurement for Automotive Lights**

(photo: SSL LUMI 120)



**Innovative Mechanical Structure** (photo: SSL LUMI 180)

- Integrated electrical device rack for space saving solution
  - Leveling castors for easier moving and installation
- Motorized vertical arm and camera for automatic adjustment of the turning axis

**Burning position correction for B and C type measurement to meet CIE S025 standard.**



**Burning Position Correction Setup for B type** (photo: SSL LUMI 120)



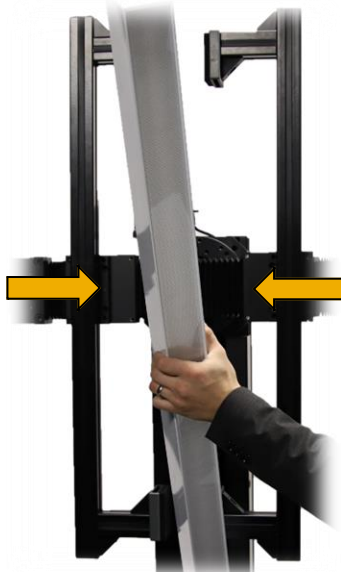
**Burning Position Correction Setup for C type** (photo: SSL LUMI 90)

PRODUCT	SSL LUMI 90	SSL LUMI 120	SSL LUMI 180
Application area	up to small-medium sized SSL luminaires (LED panels / downlights)	long automotive headlamps, general lighting fixtures	long automotive headlamps, general lighting fixtures
Goniometer type	C type (B type) with horizontal optical axis one column (two columns) arrangement		
Gonio controller	3 axis Stepper controller (19" 1U, RS-232) Worm gear drive system with deep groove ball bearings		
Arrangement	Goniometer station with electrical device 19" rack integration		
19" Rack space	6U in one column	4U in one column	8U in two columns
Gonio dimensions	1.2m, 0.63m, 0.6m, 50kg	1.3 m, 0.6 m, 0.8 m, 120kg	1.6 m, 1.3 m, 0.9 m, 160kg
Height of optical axis	1.1 m	1.3 m	1.5 m
B-DUT <sup>1</sup> : L x W x T, m	0.6m x 0.5m x 0.1m, 10kg	1.6m x 0.8m x 0.3m, 20kg	1m x 1m x 0.3m, 40kg
C-DUT <sup>1</sup> : D x T, m	0.9m x 0.3m, 9kg	1.2m x 0.8m, 20kg	1.8m x 0.6m, 25kg
Minimum space for lab room (WxH, Length L) <sup>2</sup>	1.1 m x 1.7 m, L: 5.5 m (C), 10 m (B)	3.5 m x 2.2 m, L: 8 m (C), 20 m (B)	2.7 m x 2.5 m L: 10 m (C), 17 m (B)
Angular range	±175° (γ and C axes)		
Resolution / Accuracy	<0.006° / <0.1° (γ and C axes)		

<sup>1</sup>Maximum dimensions of the luminaire under test (DUT): L=Length, W=Width, T=Thickness (B type), Diagonal D =  $(L^2+W^2)^{1/2}$ , T=Thickness (C type). m = mass (kg)

<sup>2</sup>On the basis of the photometric distances: 15 x "luminous area length" for automotive lamps (B type), 5 x "luminous area length" for C type measurements

## Easy and fast sample mounting



Mounting of a luminaire in 5 seconds using 2-handed linear sample holder.

## Up to four photometers

### Camera

1. Luminous area
2. UGR
3. Photograph
4. Turning axis adjustment
5. Setup alignment

### SSL-GSM

#### Spectroradiometer

1. Spatial color uniformity
2. Total spectral radiant flux
3. Total color parameters
4. CCT/CRI as a function of angle

### Secondary photometer

1. Measurement of low luminous intensities
2. Automated flicker measurements



# LUMI – ORDERING Information

## Goniometers

SSL LUMI 90	
SSL LUMI 120	3-axis Goniometer station (C, $\gamma$ ), motorized vertical arm, GPM-sw-full, Stray light tube and stand, Alignment laser
SSL LUMI 180	

## Photometers

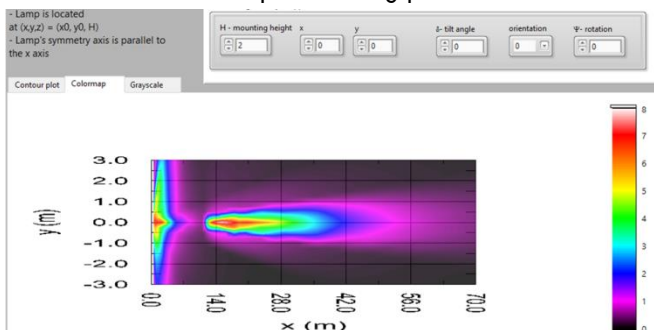
SSL L-200 & LH1010-f3	Photometer SSL L-200 and measuring head LH1010-f3 ( $f_1' < 3\%$ ), alternative photopic measuring heads available for different illuminance ranges.
SSL C-600 & CH66-4	Tristimulus colorimeter equipped with 4-channel measuring head CH66-4 having the $f_1' < 3\%$ for X,Y and $< 3.5\%$ for Z. Dynamic range 1 e8. (SSL L-200 can be replaced by C-600 to become the primary photometer.) Alternative colorimetric measuring heads available for other illuminance ranges and for $f_1'$ .
SSL GSM package	Goniospectroradiometric sw + Spectroradiometer with different wavelength ranges + additional stray light tube and Al profile stand

## Sample holders

SSL SH-lin-2	2-handed linear sample holder with trapezoidal screw for LUMI 120/LUMI 180
SSL SH-lin-3	2-handed linear sample holder with trapezoidal screw for LUMI 90
SSL SH-linear__xxx	Sample holder of linear LUT (xxx specified by the gonio model, e.g. LUMI 120, xxx=120): two alternatives attaching mechanisms: (1) by squeezeing the LUT with four angle brackets (2) by screwing the LUT using square nuts (M4/M6/M8) in the grooves (angle brackets are removed)
SSL SH-park	Sample holder of park lights: Mounting by squeezing a park light from its edges, max. $\varnothing 70$ cm, a top of the park light can be located into center hole diameter 12 cm
SSL SH-panel	Sample holder of panel lights and down lights : Mounting by squeezing a LED panel from its edges, compatible for different sizes LED panels with thicknesses of $>7.5$ mm
SSL SH-street 20	Sample holder of street luminaires with pole mounting system: 60mm tube, fixation by two screws in radial orientation, max. distance between mounting hole and the roof of the LUT 20cm
SSL SH-down	Sample holder of recessed down lights:A Long angle brackets for a spring fixation of a down light, max. $\varnothing 40$ cm, thickness 30 cm
SSL SH-flood	Sample holder of floodlights, high bay lights, etc., solid mounting of heavy luminaires, asymmetric installation. Two alternatives attaching mechanisms: Horizontal/ vertical mounting

## Options

SSL LUMI.B-xxx	B type goniometer option to be connected onto a goniometer station. Including mechanical adapters and sw add-on. xxx specified by the base gonio model.
SSL-SecPhm	Secondary photometer for measuring low luminous intensity levels / flicker (SSL L-40 photometer+ sw add-on)
SSL-BPC-c	Setup for burning position corrector including a related software tool



## NEW SOFTWARE FEATURES

- Manual and automatic beam symmetrization
- Simulations of isolux figures from headlamps at different orientations, and tilt angles.
- Custom measurement angles (non-equidistant steps)
- Automatic custom test report (pdf / html)