



# BUTTERFLY

LED STREET LIGHTING SOLUTION



SH-50/57    SH-150/57  
SH-100/57    SH-200/57

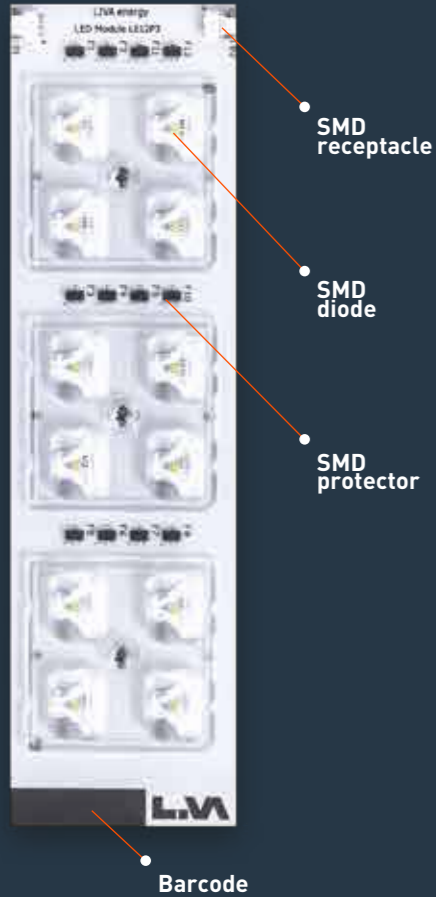
Our focus is on high-tech and high-quality products with integrated processes for complex production based on highest technological requirements and standards.



In accordance with quality management system, environmental management system and Occupational Health and Safety management system (OHSAS), LIVA Energy is certified by TÜV SÜD with ISO 9001:2008, ISO 14001:2004 and ISO 18001:2007.



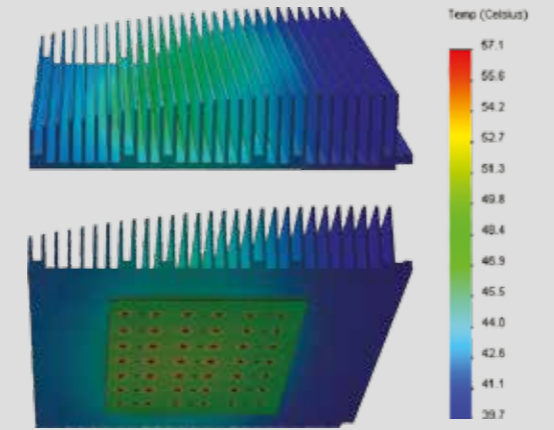
## LED MODULE AND PCB DESIGN WITH COMPONENTS



**SMD LED protector device provides three methods for increasing the reliability of LED lighting:**

1. If one of the LEDs in the array fails open, this device provides a substitute electronic path so that the rest of LEDs continues function,
2. It protects against ESD events up to ±8kV for contact discharges and ±15kV for air discharges,
3. It provides protection in the case of accidental reverse battery or power connection.

### Thermal simulation LIVA energy LED Lamp Wings



According to the IPC-A-610 standard, voidings should not be greater than 25-30%. The Figure 2.1 shows the soldering with overall voiding of 27.22% for neutral thermal pad (in the middle).

The X-Ray test result of 2% voidings for SH-150/40 LED Light shown in Figure 2.2 presents that our product quality is meeting the IPC-A-610 standard. Liva Energy production processes significantly decrease voidings, allowing the most ideal heat flow from LED diode to the heat sink as shown in Figure 1.1.



X-Ray capture of even acceptable (but not for LIVA Energy standard) thermal pad soldering

14,93%  
27,22%  
9,89%



X-Ray capture LIVA energy thermal pad soldering

2,00%



## CONTROL TECHNOLOGY

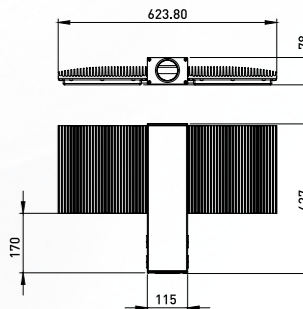
- PLC (Power Line Communication)\*
- ZigBee\*
- RF (Radio Frequency)\*
- Bluetooth\*
- Ethernet\*
- GSM\*
- Wi-Fi\*

## DEVELOPABLE APPLICATIONS

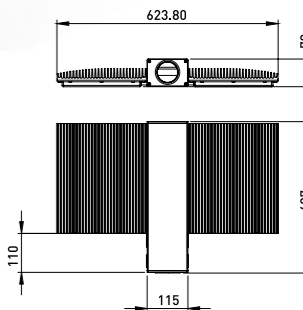
- Maintenance Control
- Energy Consumption Management
- Camera Surveillance
- Weather Monitoring
- Traffic Conditions
- Programmable Dimming System
- Android\*
- iOS\*

	SH-50/57	SH-100/57	SH-150/57	SH-200/57
PRODUCT CODE	SS6LE12P3ME-57PLDN	SS6LE12P3ME-57PNDN	SS6LE12P3ME-57PHDN	SS8LE12P3ME-57PHDN
APPLICATION	Street and Highway Lighting			
BALLAST TYPE	Constant Current			
BALLAST INCLUDED	Yes			
OPTICS TYPE	ME [Asymmetric Wide]			
LAMP TYPE	LED			
LAMP COVER	Poly Carbonate with UV protection			
LUMINAIRE COLOR	Silver Bracket / Wings			
COLOR PROTECTION	Yes [Anodisation]			
LIGHT CONTROL	Dimming * [0-10 VDC]			
PHOTOCELL	Yes*			
SURGE PROTECTION	Yes*			
PROTECTION	Class I			
INPUT VOLTAGE	100-240 VAC			
INPUT FREQUENCY	50/60 Hz			
NOMINAL POWER	50 W	100 W	150 W	200 W
FORWARD CURRENT	250 mA	500 mA	700 mA	700 mA
ELECTRICAL EFFICIENCY	94 %			
NUMBER OF DIODES	72	72	72	96
LIFETIME OF DIODES	100 000 hr			
LAMP COVER EFFICIENCY	88 %			
INITIAL LUMINOUS FLUX**	7812.9 Lm	14640.2 Lm	19484.6 Lm	25979.4 Lm
INITIAL LED EFFICIENCY**	157.9 Lm/W	141.7 Lm/W	131 Lm/W	131 Lm/W
CRI	70 min			
CCT	5700 K			
ACTUAL LUMINOUS FLUX	6462.8 Lm	12110.3 Lm	16117.6 Lm	21490.1 Lm
HOUSING MATERIAL	Aluminium			
OPTICS MATERIAL	PMMA [Poly Methyl Methacrylate]			
TOTAL WEIGHT	9.87 kg	9.87 kg	9.87 kg	11.3 kg
ACCESSORIES	Yes* (Spigot, Bird Spikes, Wall Adapter)			
MOUNTING HOLE	Φ=60 mm			
SIZE [L X W X H]	623.8 mm x 427 mm x 78 mm			
INGRESS PROTECTION	IP66			
AMBIENT TEMPERATURE	-40°C to +50°C			

### SH-50 / SH-100 / SH-150



### SH-200



\*Optional-upon request with additional cost \*\*Junction temperature Tj=85°C



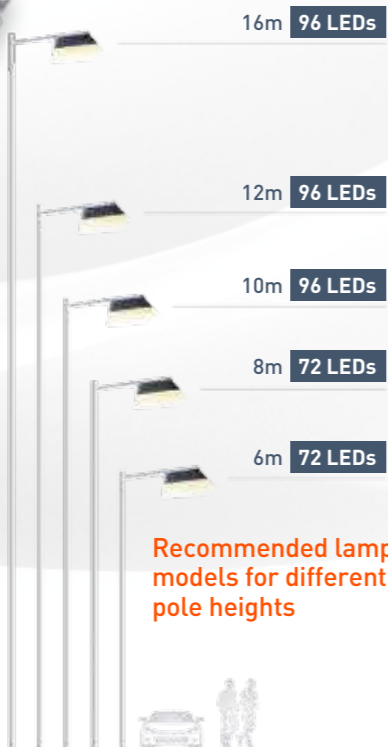
The key to controlling the bright light generated by LEDs is the optical system in the Lamp. In this regard our products provides maximum light output and optimal light control.

LIVA Energy is using a proven manufacturing techniques, which does not bring any risk of yellowing or deformation of the optical cover.



Based on the project, LIVA Energy can develop custom made applications that control lamp functions using PLC, RF, Wi-Fi, ZigBee, Bluetooth, Ethernet and GSM, such as:

- MAINTENANCE CONTROL
- ENERGY CONSUMPTION MANAGEMENT
- CAMERA SURVEILLANCE
- WEATHER MONITORING
- TRAFFIC CONDITIONS
- PROGRAMMABLE DIMMING SYSTEM
- OTHER DEVELOPABLE APPLICATIONS



Recommended lamp models for different pole heights



In accordance with quality management system, environmental management system and Occupational Health and Safety management system (OHSAS), LIVA Energy is certified by TÜV SÜD with ISO 9001:2008, ISO 14001:2004 and ISO 18001:2007.

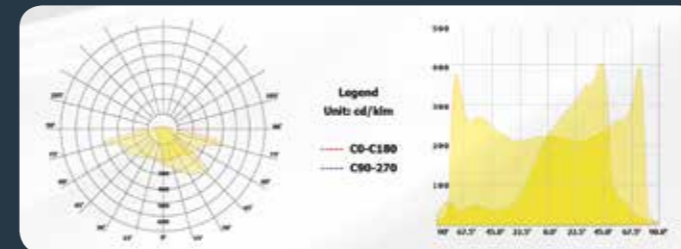
**ME** - This class is intended for users of motorised vehicles on traffic routes. The **ME** classes goes from **ME1** to **ME6**, with **ME1** defining the strictest requirements.

**KEY WORDS**

- L<sub>m</sub>** MAINTAINED AVERAGE LUMINANCE
- U<sub>l</sub>** LONGITUDINAL UNIFORMITY RATIO
- SR** SURROUND RATIO
- U<sub>0</sub>** UNIFORMITY RATIO
- TI** THRESHOLD INCREMENT

STANDARD	LUMINANCE			SR	TI
	L <sub>m</sub>	U <sub>0</sub>	U <sub>l</sub>		
ME1	≥ 2.0 cd/m <sup>2</sup>	≥ 0.40	≥ 0.70	≥ 0.50	≤ 10%

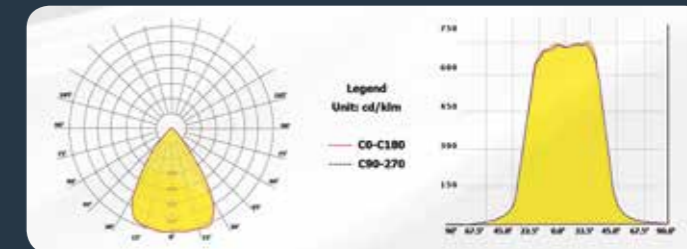
Main parameters for reaching ME1 Standard, CIE (Commission Internationale De L'eclairage)



LIVA energy is using lenses that are optimized for specific LED types and have optimal light distribution with over 90% optical efficiency. They are designated for roadway lighting and have batwing light distribution for better road luminance performance. Special care has been taken in low glare (TI) and longitudinal uniformities flexibly for narrow to wide pole spacing installations. Asymmetric design removes the need of tilting the luminaires head. Lenses that our product have, ensure very high optical efficiency.

LIVA	LUMINANCE			SR	TI
	L <sub>m</sub>	U <sub>0</sub>	U <sub>l</sub>		
SH-150/40	2.26 cd/m <sup>2</sup>	0.71	0.85	0.50	9%

Main parameters for SH-150/40 LED light from LIVA Energy



LIVA energy is also producing LED lamps with extra wide version of optic modules, having a round light pattern with low glare and excellent cut-off. It can be used in high bay applications with lower mounting heights and also in low bay applications due to the width of its beam. Applicable areas are Parking and Pedestrian zones, Industrial lighting including Tunnels.



# WE PRODUCE SOLUTIONS



address. LIVA Energy d.o.o. Sarajevo  
Igmanska bb, Vogošća, 71320  
Sarajevo, Bosnia and Herzegovina  
tel. +387 33 584 524  
fax. +387 33 584 525  
email. [info@livaenergy.com](mailto:info@livaenergy.com)  
web. [www.livaenergy.com](http://www.livaenergy.com)

 N 43° 54' 16,4"  
E 18° 21' 58,5"