
TECHNICAL DESCRIPTION OF WESTERN CO. PV LAMP

Code SPL12-W



The PV lamp must have:

- No. 01 Solarworld 80Wp 12V monocrystalline PV module.
- No. 01 box on the rear side of the PV module for housing of battery and electronics.
 - No. 01 12V 55Ah sealed GEL battery without maintenance to be placed inside the abovementioned drawing.
- No. 01 galvanized cylindrical grey-painted pole 4,5 metres over ground (Htot 5 meters, diameter =102mm).
- No. 01 Western Co. IP56 charge regulator with timer programming and control of battery voltage, light sensor working through PV module sensor and temporised turning off programmable through micro-switch that can be set on the regulator case.
- No. 01 Urban LED Luminaire

System description:

The PV lamp for parks and gardens is completely autonomous and it has been dimensioned to work with programmed light activations up to 10 hours per night and with an autonomy of 3 days in case of “no sun condition”.

The electronic circuit, with 12V nominal voltage, has the function of charge regulator with PWM technology. The PV lamp programming can be set through micro switches for 3/6/8/10 hours per night or complete light sensor.

1. Western Co. electronic charge regulator

- Western Co. charge regulator code **SPC07IP**
- Manufacturer certified: ISO 9001:2008
- SMT technology.
- Working voltage: 12V
- Current from PV module: 7A
- Typical current on load: 7A
- Recharge with temperature compensation of the batteries.
- Threshold voltage on PV module for light sensor activation: 1.5V
- Threshold voltage on PV module for light sensor deactivation: 3V
- Programmable output with timer inside that is programmable to 3/6/8/10 hours or complete sensor.
- Programming through micro switches that can be set on the regulator case.
- Remote input for connection with infrared sensor.
- IP56 insulation degree.
- PWM system charge.
- Maximum battery discharge of 30% or of 70% which is programmable according to the timer setting.
- NTC sensor for revealing of battery temperature.
- Input for possible activation through IR sensor.



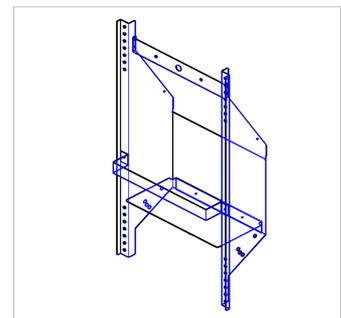
2. PV module

- Manufactured in an ISO 9001:2000 certified plant
- CE mark
- $P_{max} = 80$
- N° 36 solar cells in a series
- Nominal voltage = 12V
- $I_{mpp} = 4,49$ A
- $V_{mpp} = 17,9V$
- $I_{sc} = 4,78$ A
- $V_{oc} = 21.94V$
- Anodized aluminum frame
- Width out of frame = 680mm
- Height out of frame = 958mm
- Frame thickness = 34mm
- Wheelbase in height of fixing holes = 705mm
- Wheelbase in width of fixing holes = 507mm
- Weight = 7,6 Kg



3. Top-of-pole mounting structure

- Western Co. code PSE002
- Galvanised and black-painted structure with drawer for battery and electronics
- Articulation for variable inclination with single pressure pin
- Container with slits for aeration



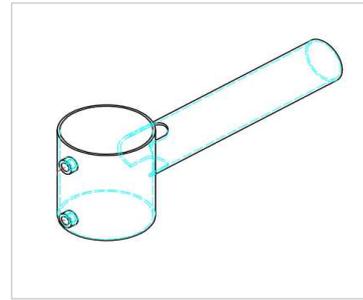
4. Batteries /Accumulator

- Voltage: 12V.
- Capacity: 55 Ah in C20
- GEL technology – sealed without maintenance
- Low auto-discharge.
- For cyclic use of charge and discharge



5. Lamp-bracket

- **BVPSE002 Model**
- Galvanised and grey-painted lamp-bracket
- Diameter: 60mm
- Coupler included
- Grey color



6. Kit of cables

- Modello **K.CAVI/SPL**
- Kit of cables for outdoor applications
- Cables for PV modules
- Cables with terminals for batteries



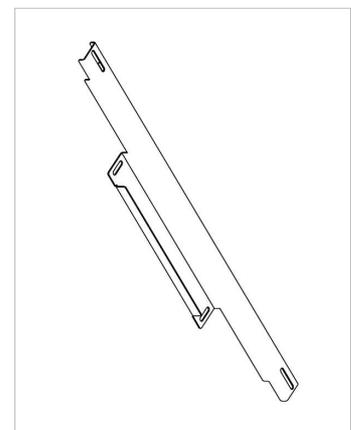
7. Pole

- Cylindrical galvanized pole 4.5m over ground
- H tot 5 meters
- diameter = 102mm
- Grey-painted



8. Kit of brackets

- **PSE-KSL675 or PSE-KS-TELE Model**
- Steel structure
- PV module fixing on the top-pole mounting structure
- Length in function of PV module length



8. WL12 - W-Light Luminaire 12LED 12W 12/24VDC 310mA

Luminaire with LED technology for urban lighting suitable for application to lamp-bracket or top-of-pole mounting structure.

The supporting structure of the luminaire, which acts as a heat sink too, is made of extruded aluminium alloy EN AW 6060 stato EN – T6, thickness 6mm, dimensions 233 x 300 mm, height 79 mm. It is made up of a suitable number of fins exchanging the heat produced by the lighting body with the external environment in order to keep the LED's junction temperature at a value that ensures a life longer than 60000 hours L70(10k) according to IESNA TM-21 at 85°C ambient temperature (critical failures included). The anodising treatment is able to ensure resistance to the external environment and promotes heat dissipation.

The bottom of the frame, perfectly flat, is used for the fixing of the LED modules.

The side caps are made of die-cast aluminium - alloy 46100 - epoxy enamelled, after phosphodegreasing treatment (chromium-free) and they are coupled with the body by silicone sealant and screws.

Universal attack to bracket or top-pole made of hot galvanized and painted steel Ø 60 mm. Adjustable tilting system which allows an inclination of 0° / -5° / -10° / -30° for bracket installation and of 0° for top-pole installation.

EPDM gasket applied on proper housing obtained from the body and from the side caps.

The closing screen is in tempered high transparency flat glass - thickness 4mm with decorative serigraphy; it is fixed on the apparatus body by 4 glass-stop accessories made of die-cast aluminium - alloy EN 46100 - epoxy glazed after phosphodegreasing treatment (chromium-free) and screws. The screen can be easily removed to allow the access to wiring compartment.

The colour of side caps, of the glass stop and of the attack is: "matt black".

The luminaire has an interior air exchange filter.

Asymmetric cycle-pedestrian optics composed of n. 2 modules with 6 LED for a total of 12 LED.

Luminaire luminous flux: 1240 lm.

The photometric measure complies with UNI EN 11356.

"Cut-off" photometric emission in compliance with regional laws for light pollution and with UNI EN 13201.

The optical system is composed of single lenses, one for each LED, with high optical efficiency (about 92%) made of polymethylmethacrylate (PMMA).



8. WL12 - W-Light Luminaire 12LED 12W 12/24VDC 310mA

Luminous source constituted of high efficiency LED (133 lm/W – If=350mA – Tj=Tamb=25°C) with 4500K color temperature and CRI 70. The LEDs are mounted on printed circuit boards manufactured with a layer of aluminium support, ceramic insulation layer and copper conductive layer, total thickness of 1,6 mm.

Between the dissipating part and the LED circuit there is a layer of thermo-conductive material so to improve the thermal continuity between the parties.

LED 5mm – 15° blue color with decorative function installed in the street side cap.

Power supply composed of 1 electronic LED Driver with 1 high-efficiency channel (92% typical) - Class of Insulation III, entirely located inside the wiring compartment, that has to ensure the continuity of the LED modules' power supplying , fixed with screws on housing obtained on the luminaire extruded body and connected to LED modules through cables fixed on the output terminals. 12/24 VDC supplying voltage, constant supplying current of LED of 310mA to obtain a total consumption of the luminaire of 12W (including the LED driver efficiency) at full flux and a consequent luminaire luminous efficiency of 103 lm/W. Thermal protection, overload / short-circuit and overvoltage protections.

Possibility to make the luminaire work at reduced flux of 30% according to the settings on the charge regulator of the PV lamp.

Connection to the PV charge regulator by H07RN-F 3x1.5 mmq. neoprene black cable (+Vin, -Vin, Dimmer) integrated in the apparatus and directly fixed on the input terminals of the power supply.

Luminaire input fixing (pole side cap) by M16x1.5 mm white nylon cablegland BM-41L IP68.

Other features:

Luminaire dimensions: 300 x 299 mm.

Luminaire height: 84mm.

Protection degree of optical and wiring compartment: IP65.

Weight: 8,25kg.

Lateral surface exposed to the wind: 0,04 m².

Plant surface exposed to the wind: 0,11 m².

Insulation class: III (SELV).

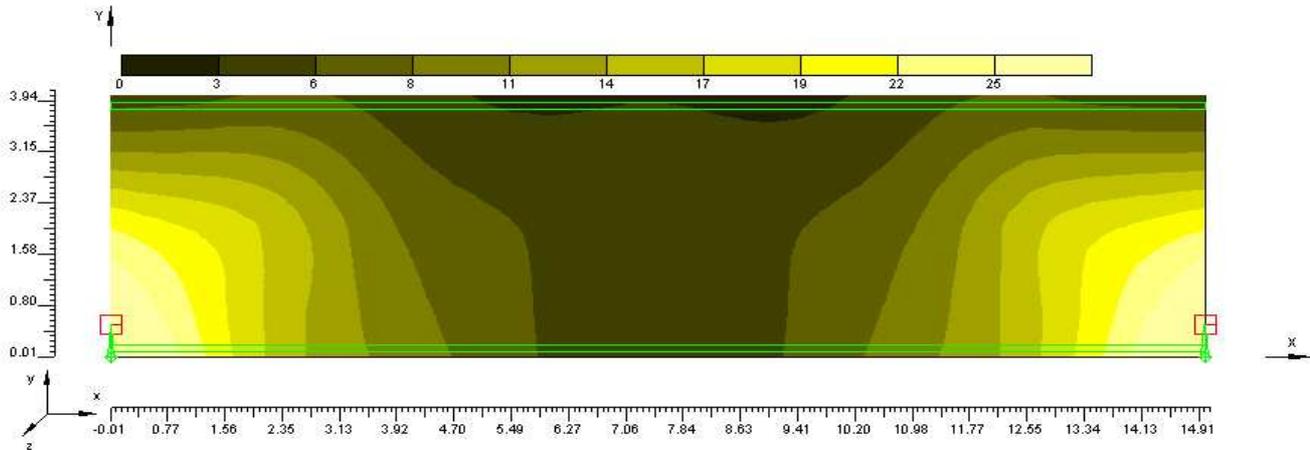
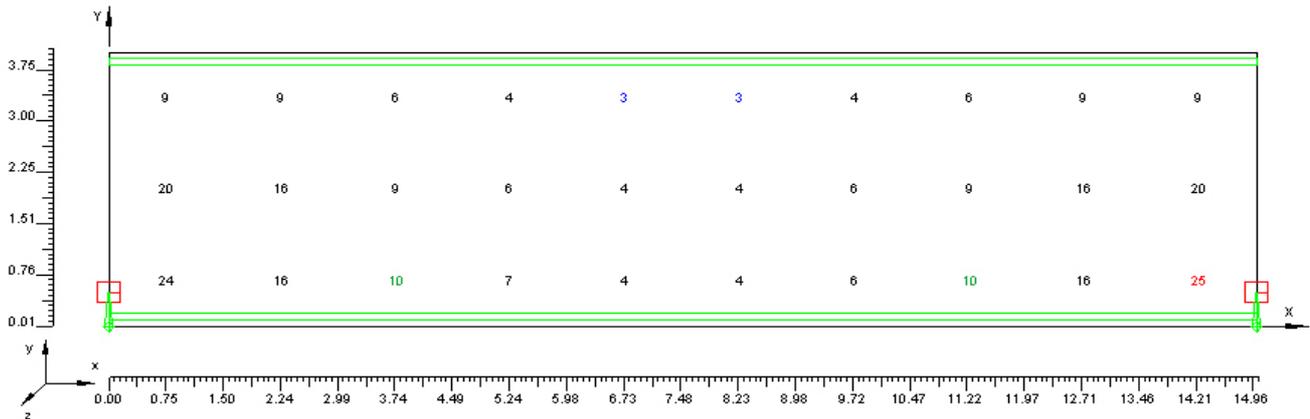
Warranty: 5 years

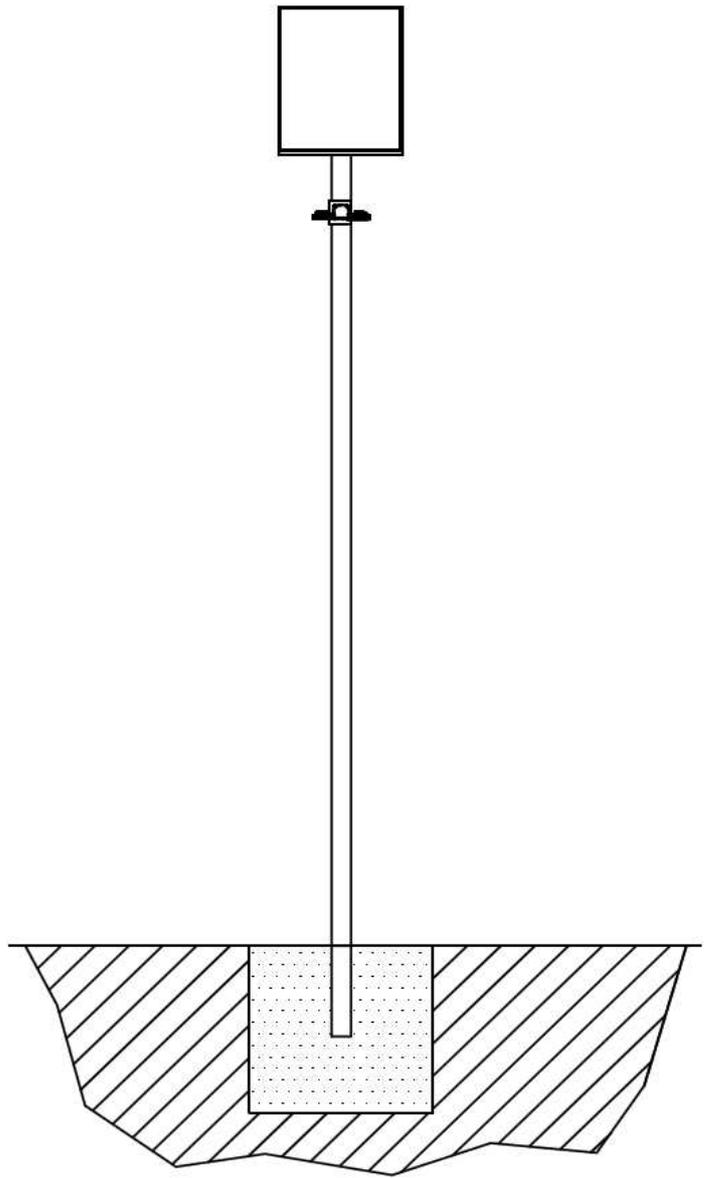
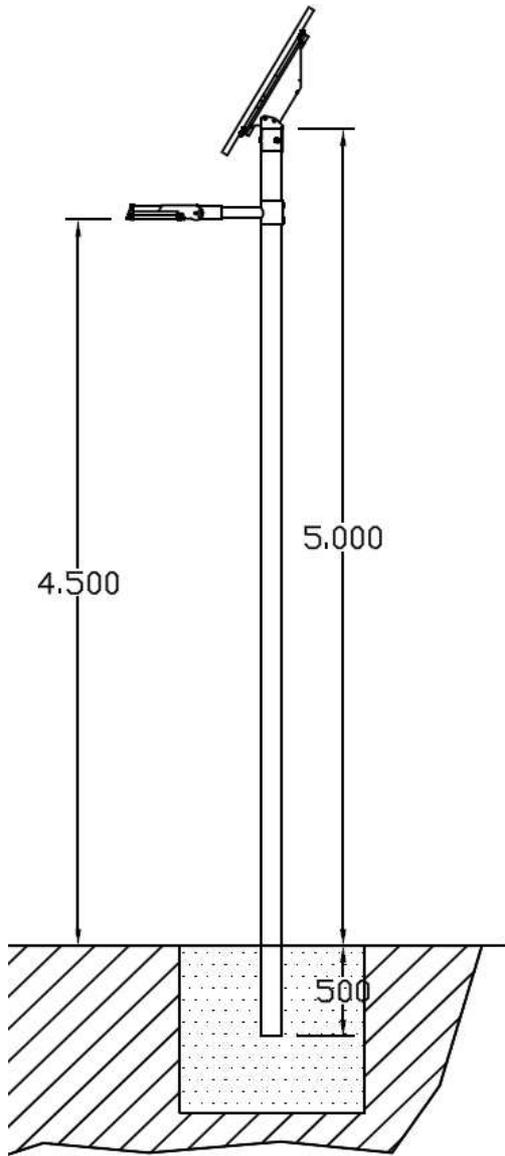
LIGHTING PERFORMANCES - EN 13201 RULE COMPLIANCE

Ta	Ambient temperature	[°C]	25
MF	Maintenance factor	[%]	80
T	Luminaire tilt angle	[°]	0
S	Overhang	[mt]	0,5
L	Road width	[mt]	4
H	Luminaire height	[mt]	3,5
I	Pole spacing	[mt]	15

WL12			
N.LED	Luminaire LED number		12
P	Luminaire power consumption	[W]	12
Fi	Luminaire luminous flux	[lm]	1240

Emed	Average illumination	[lux]	10
Emin	Illumination uniformity	[lux]	3
Lighting category satisfied			S2





BASEMENT

The study and the calculation of the size of the plinth for the fixing of the PV lamp must be made by the system designer and must take into consideration the soil type and location of the installation. In the entered data there are standard indications.

