

Technical description

about

PEL EE SUNREFLECT 1212125 with **12 W** output,

PEL EE SUNREFLECT 2412125 with **24 W** output,

and

PEL EE SUNREFLECT 3612125 with **36 W** output



PURPOSE OF SOLAR PUBLIC LIGHTING EQUIPMENT FAMILY

The Sun lights up for free...

General data

Denomination: Purpose of solar public lighting lamp-standard.

Type: PEL EE SUNREFLECT 1212125 with **12 W** LED lamp
PEL EE SUNREFLECT 2412125 with **24 W** LED lamp
PEL EE SUNREFLECT 3612125 with **36 W** LED lamp.

Manufacturer: **PACKERS-Energo Light Kft.**
Hungary, H-1223 Budapest, Katakomba u. 16.

Applied technology: Solar and LED technology with intelligent charge control automation (MPPT), which contains overcharge and low discharge protection, optimum-point and luminosity control.

Rating: European conformability (CE)

Time of production: 2017. May 4.

Technical characteristics

Measured luminous flux:

PEL EE SUNREFLECT 1212125 12 W = **1 670 lumen;**
PEL EE SUNREFLECT 2412125 24 W = **3 340 lumen;**
PEL EE SUNREFLECT 3612125 36 W = **5 000 lumen.**

The shine-poor periods are not affected the measured results.

Standard acceptability, classification:

By the base of standard **MSZ EN 13201** with spacing 25 meters correspond to **CE5, ME4, ME5, ME6, S4, S5, S6, S7** classification of public lighting, equally in the winter and summer season.

- III. class of protection against electric shock – directives of extra low voltage
 - PREN 50278 – electromagnetical compatibility
 - MSZ EN 60529, IP 54 – density and watertightness
 - MSZ EN 12352:2002, S3 – criterion of the safe fixation and closing
 - 1996. évi LIII. – Act about protection of the nature
 - 1994. évi LV. – Act about the fieldlands.
 - These public lighting equipments correspond to the strictest environmental protection. They not impair the nature – possible to locate in conservation areas, too.
-
- these equipments contain a 14Ah or 22Ah closed systemic gel deep cycle battery, planned to solar technology. (Operation about 100 hours without sunshine)
 - The battery is placed in the lamp-standard.
 - The height of the light spot is 4750 mm.
 - 5000 mm high, statically-sized, galvanized steel, public lighting lamp-standard.
 - 45 – 80 W polycrystalline solar cell in the metal frame (with 25 years guarantee).

- LED luminous body in aluminium house with polycarbonate plastic cover (IP65, IK08 shockproof).
- The LED luminous body assembled with optical lens according to the current lighting situation.
- Low energy consumption about 9 – 13 W.
- Colour temperature: 4000-5500 K° (it corresponds to the natural light).
- Colour Rendering Index: Ra > 80.
- Intelligent charger/regulator/control/protector automation (PEL MPPT control equipment) with 97 per cent efficiency.
- Special PEL programmed control and regulation for the optimal and equable winter/summer operation.
- 850 mm height, statically-sized basement-armour.
- Setting in 1 meter deep into the ground, 0.6 meters x 0.6 meters wide placement, with reinforced concrete.

Operation of the “PEL EE Sunreflect” solar lamp-standard family

The used batteries joint maximally to the solar technology in order to extract the maximum possible energy efficiency and storage in the daytime period.

To optimize the obtained energy we use a self developed and manufactured programmable microcontroller adjustment (MPPT Solar energy management)

This programmed energy management with the adjusting of luminous flux adapts to the needs the illumination at the certain times of the night.

The energy management continuously monitors the voltage of the battery and depending on this will adjust and controls the LED illuminator. This energy management system will provide a maximum and safe lighting time in the low-light periods, too.

The switching “On” or “Off” occurs automatically when necessary.

Required permits to the installation of the lamp-standard

Normally the placing the solar lamp-standard does not require official permission up to height 6 meters. It may be necessary the permission of the area owner in some cases.

Notable: see the relevant laws in your country!

The expected time-consuming installations

About 10 – 20 days. (Excavation of the required hole about 50 cm x 50 cm x 80 cm plus the concreting of the base armour plus the concrete setting time + the transport to the location of solar lamp-standard and put in operation.)

The guarantee

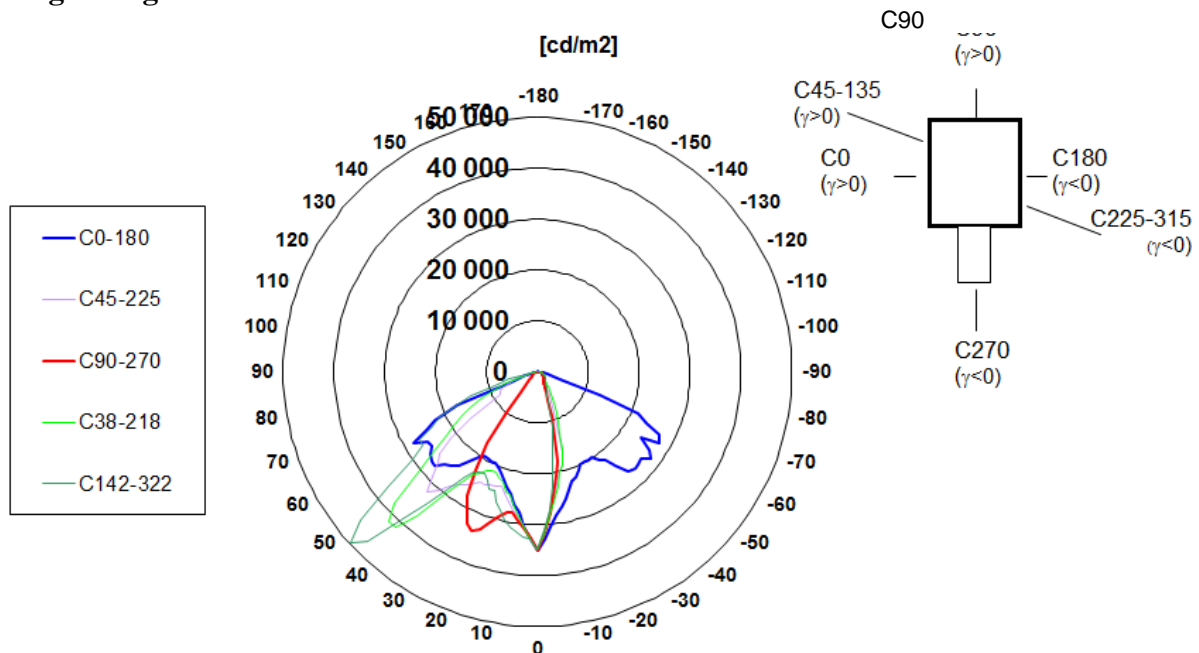
- 2 years general warranty;
- the manufacturer's warranty on the battery;
- 5 years warranty to the LED illuminator and the solar panel.

The warranty is valid only if it fit for use. The damage resulting from improper use, the manufacturer makes no guarantee (malicious damage, theft, damages caused by nature, etc).

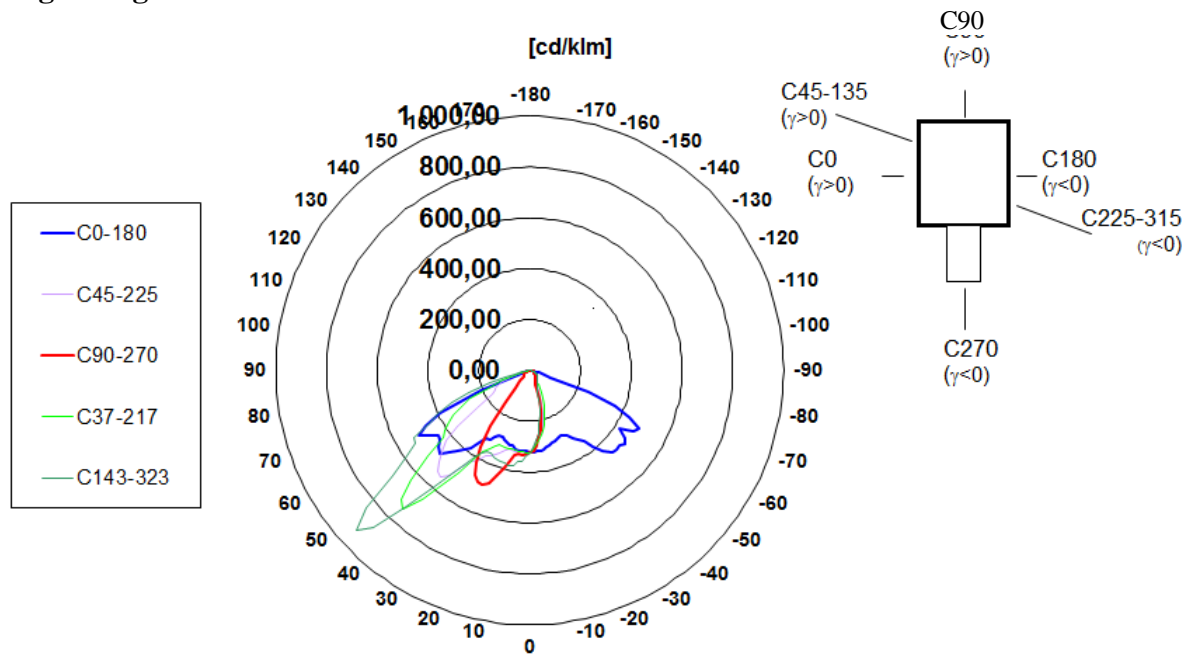
Benefits of the “PEL EE Sunreflect” solar public lighting equipment family

- No need to build power grid to install and operate this lighting equipments.
- You do not need any external electrical power supply – the equipment operate clean with solar power – self-supplier 100 pro cents.

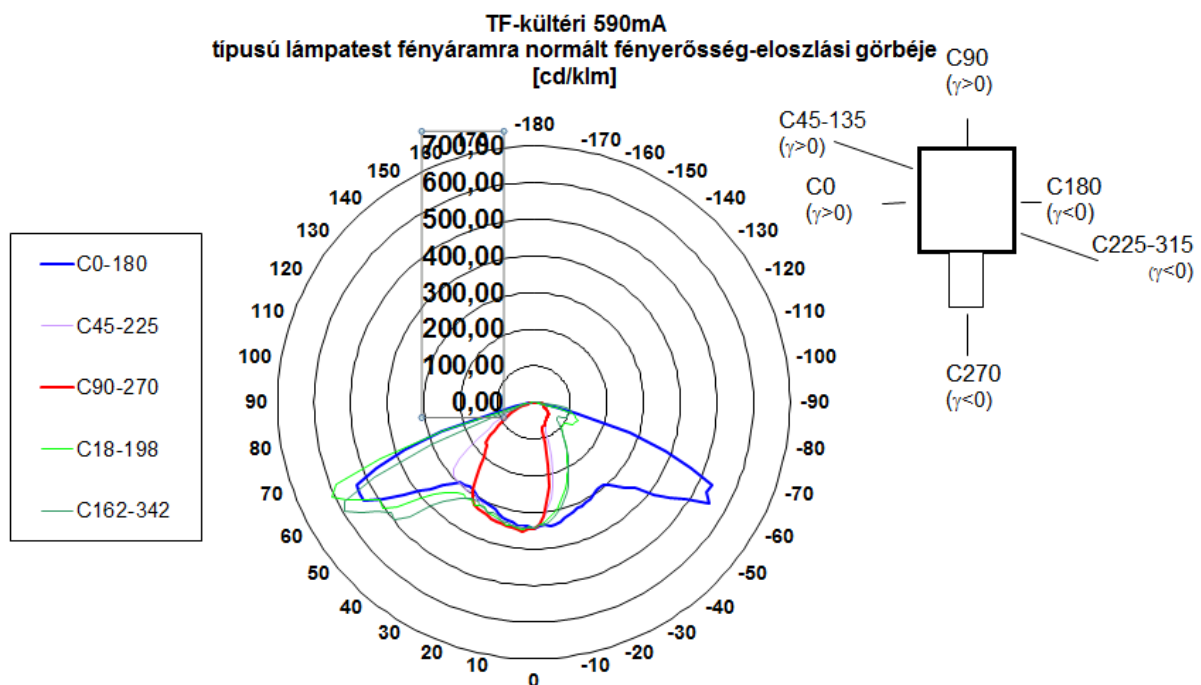
- Installation does not involve any kind of environmental destruction. You can also install Conservation area.
- Operating costs are extremely low (the battery must be replaced every 2 - 5 years. It is about US\$40-60).
- Negligible maintenance requirements.
- Not only intense sunlight needed to operation as a result of the technology used, the scattered light is more than enough.
- Reliable operation even during periods of poor light.
- equipped with lighting optics (uniform illumination for 120-130 degree. The illuminated area (*depend on applied output efficiency and highness of illuminator*): 26-34 meters x 8-12 meters).
- Color temperature: 4000 – 5500K°
- Color rendering index $R_a > 80$
- This lighting equipment contains a programmable intelligent control electronic, with charging and protective module (PEL-MPPT, efficiency min. 97 per cents).
- Trusted and smooth operation in winter - in summer.
- Statically dimensioned basement-armour and the lamp-standard. Corresponds to extreme meteorological circumstances, too.

Target-diagram of luminance PEL-EE Sunreflect 1212125 DC 12W/LED

Target-diagram of luminance PEL-EE Sunreflect 2412125 DC 24W/LED



Target-diagram of luminance PEL-EE Sunreflect 3612125 DC 36W/LED



- The installation of this lighting equipment is very easy in any place – with particular regard to areas where there is no electrical network or it is can be installed at too high cost only. (Lighting of the streets, unfrequented streets, walkways, pedestrians, bikeways, gardens, parks, playgrounds, public areas, open-air sport-places, industrial areas, farming areas, parking areas, etc.)
- It can be installed according to individual requirements.
- Light of this equipment is uniform – it is not blinking and not flickering.

- It will turn on automatically when it is dark and turn off when it lightens.
- It can be installed with motion detector or manual switch, too.
- The lighting equipment is aesthetically pleasing.
- Reliable operation in winter and low light periods as well.
- Low operating costs (replacement battery every 2 – 5 years).
- Negligible maintenance costs.

The luminaire does not emit any UV or infrared radiations.



PACKERS

Packers Energo Light Kft. 1.

H-1223 Budapest, Katakomba utca 16.

Telefon/fax: +36-1-229-1521 Asz.: 12233427-2-43

Mr. Tibor Kiss

Director

Packers-Energo Light Ltd.