

# INVO PD-021 Solar Powered LED Bollard

The INVO PD-021 solar powered LED bollard is an incredible blend of aesthetics and functionality, bridging the gap between domestic and commercial bollards with its high specifications. This remarkable outdoor lighting solution not only adds a touch of elegance to any landscape but also offers exceptional performance. With its sleek and modern design, it seamlessly integrates into residential areas, parks, pathways, and commercial spaces alike. What sets the PD-021 apart is its commercial-grade specifications, ensuring unparalleled durability and reliability. The INVO PD-021 solar powered LED bollard truly embodies the perfect synergy between style and functionality, enhancing the ambiance and safety of any outdoor area.

## LIGHTING

<b>Nominal flux</b>	420 Lumens
<b>Nominal Power</b>	3.5 Watts
<b>Efficiency</b>	120 Lumens / Watts
<b>Chips LED</b>	Philips Luxeon 30-30
<b>LED Lifetime</b>	Over 80,000 hours LM80
<b>Optics &amp; CCT</b>	T V / 2300 to 6500K (Dual CCT optional)
<b>Light Height</b>	80 cm

## BATTERY

<b>Technology</b>	Lithium Iron Phosphate LIFEP04
<b>Capacity</b>	28 Wh
<b>Autonomy</b>	Over 24 hours at full charge - 4 rainy days back up
<b>Charging Time</b>	6 hours
<b>Lifespan</b>	Over 3000 Cycles @ 80% DOD over 10 years lifetime
<b>Working Temp</b>	-10°C to 70°C (Optional -40°C to 70°C)

## ENERGY

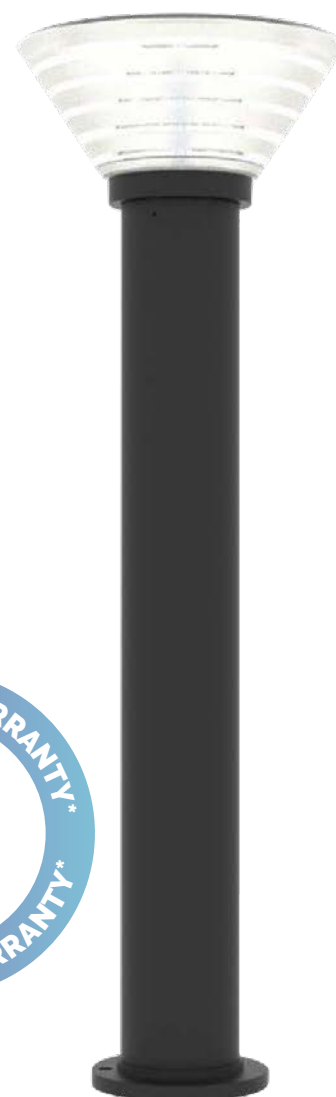
<b>Solar Panel</b>	6 Wc
<b>Cells Type</b>	Monocrystalline Panel Grade A 25 years
<b>Certificates</b>	IEC 61215 - IEC 61730 I and II - IEC 60904

## ELECTRONIC

<b>Sensor</b>	PIR 180° Sensor (optional)
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## DIMENSIONS

<b>Product</b>	26(D)cm x 80(H)cm
<b>Carton Size</b>	85cm x 32cm x 33cm
<b>Weight</b>	4.3 kg
<b>Material</b>	Die Cast Aluminium
<b>Installation</b>	Concrete base or insert on support



## CERTIFICATIONS

IEC / TUV / EMC / LM-79- 08 and LM-80 test standards / IK8 / IP65 / CE / ULOR

\*Procure Direct offers a 5 Year Limited Warranty for the Post Top-Series luminaire shall be free from defects in material and workmanship for up to five (5) years from date of shipment. This limited warranty covers all components when installed and operated according to PD instructions. Fixture suitable for ambient temperature from -10° to 50°. PV Panels: 20 year performance warranty. Controller & Batteries: 5 years

## LUMINAIRE HOUSING & LEDS

420 LUMENS

The PD-021 bollard incorporates the latest LED technologies, its elegance and ease of installation will meet your lighting needs. PD-021 is equipped with LED chips, combining performance and robustness with 120 lumens per watt.

Our light fixture also complies with current standards concerning light pollution.



IP<sub>65</sub>

## SYMMETRICAL LIGHT DISTRIBUTION

LIGHT DISTRIBUTION

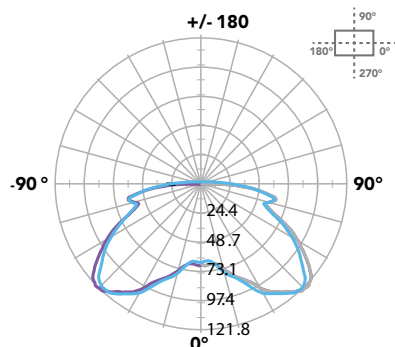
SYMMETRICAL



## LIGHT DISTRIBUTION CURVES

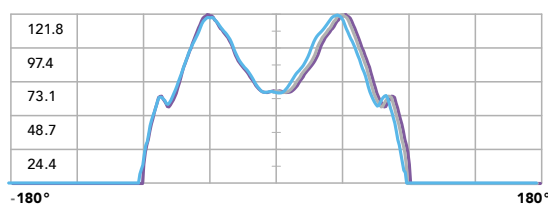
LIGHT DISTRIBUTION CURVE

UNIT : CD



LIGHT DISTRIBUTION CURVE

LINEAR



CD C0/C180 — C90/C270 — C0 —

## BATTERY LIFEPO4

### + OVER 10 YEARS LIFETIME

The PD-021 bollard is equipped with Lithium Iron Phosphate LIFEPO4 batteries, recognised as the best battery technology in terms of longevity, safety, and performance for solar applications. Our batteries enjoy a lifespan of over 3000 cycles, which is more than 10 years at 80% DOD.

### EXTREME TEMPERATURE

#### -10 °C TO 70 °C (-40 °C OPTIONAL)

Most suppliers offer a standard Lithium LiFePo4 batteries with a working temperature range from -10°C TO 70 °C. However, upon request we can offer a new special LIFEPO4 battery, with working range of -40 °C. to 70 °C.



## BMS ELECTRONIC PROTECTION

### BATTERY MANAGEMENT SYSTEM

Our batteries are equipped with **electronic circuit boards for a higher protection**, ensuring battery function optimisation no matter what the situation.



The BMS Protects against :

- OVER/UNDER CURRENT
- OVERLOAD
- OVER/UNDER VOLTAGE
- OVER/UNDER CHARGE
- TEMPERATURE MANAGEMENT

### COMPARISONS OF DIFFERENT BATTERY TECHNOLOGIES

#### LIFETIME & CYCLES AT 80% DOD\*

*Comparisons of different battery technologies*



Lead Acid  
**200**



NimH  
**700**



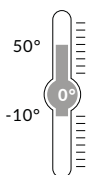
Lithium ION  
**800**



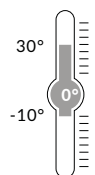
Lithium LifePO4  
**3 000**

#### CHARGING TEMPERATURE RANGE WITHOUT CAPACITY LOSS

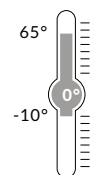
*Minimum & Maximum temperature range for Optimal charging during the day*



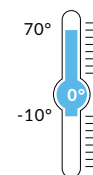
Lead Acid



NimH



Lithium ION



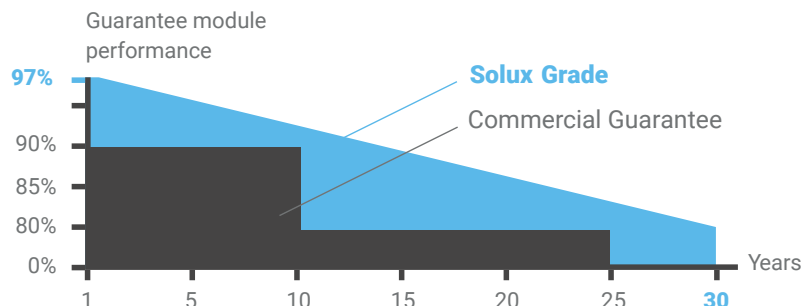
Lithium  
LifePO4

## SOLAR PANEL

### 6 WATTS

Encapsulated Monocrystalline Solar Panel Grade A Solar Cell with Tempered Glass.

## OUR PV PERFORMANCE GUARANTEE



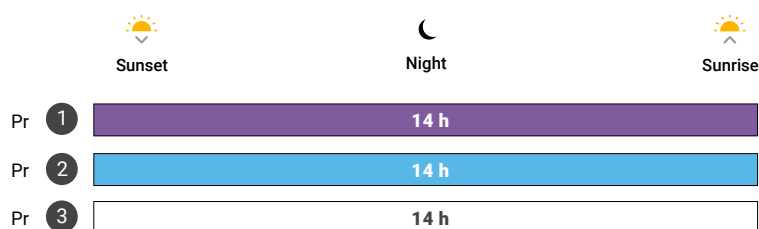
## MOTION SENSOR

### OPTIONAL PIR INFRA-RED MOTION SENSOR

The PD-021 bollard optional PIR motion sensor, automatically turns on at dusk and off at dawn. The infra-red detector integrated into the light fixture will increase the light power as pedestrians or vehicles pass, thus providing a higher level of safety while respecting the environment.



## OPERATION MODE & LIGHTING SCHEDULE



Depending on the geographical area, we will select the % of light reduction.

**Program 1** > 40% Dim + 100% ON during 20 sec

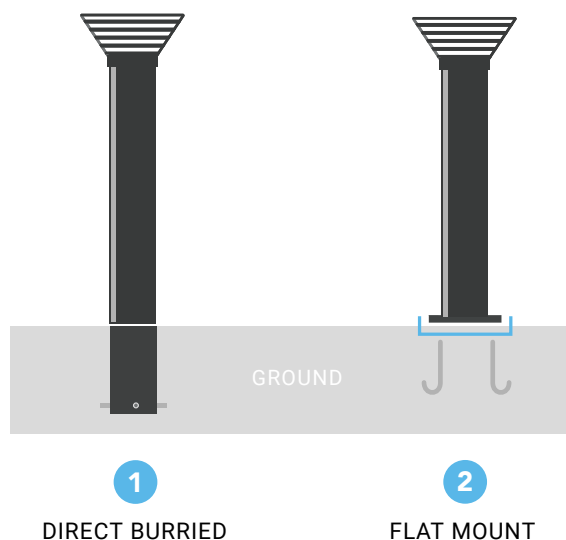
**Program 2** > 30% Dim + 100% ON during 20 sec

**Program 3** > 20% Dim + 100% ON during 20 sec

## EASY INSTALLATION

### NO CABLING, NO TRENCHING

The PD-021 comes in two different mounting types, neither require trenching or cabling for a fast and economical installation. Simply insert the bollard into concrete or mount it on anchor rods.



## DIMENSIONS

### BOLLARD AND BASE

