

# DATASHEET

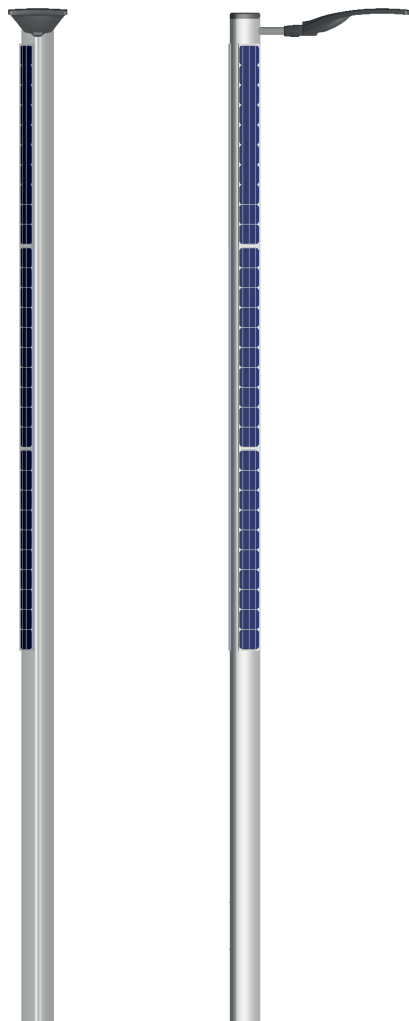
PLECTRE - SOLAR CELL LIGHTING COLUMN

BY SUnTech energiE



## DATA SHEET

# PLECTRESUN



### PRODUCT DESCRIPTION

PLECTRE SUN is a stand-alone, self-sufficient solar cell column for professional exterior LED lighting systems. PLECTRE SUN is flexible and accommodates the most common LED luminaires.

The integrated controller management system [CMS] allows management of the individual lighting profile and the tracking of operating data, alarms and capacity performance.

The Triangular column is covered by solar cells on 1 or 2 sides for the individual designed installation for maximum uptake of direct and reflected sunlight all day long with a high level of operating reliability.

### MATERIALS

Due to the choice of materials such as, recyclable aluminum and Glass, PLECTRE SUN is a clean, eco-friendly product:

- 100% carbon-neutral operation
- 18% Monocrystalline solar cells
- 100% recyclable materials
- Integrated CMS light control
- Remote access and monitoring [optional]

### CUSTOMIZE YOUR PLECTRE SUN

The PLECTRE SUN colum can be customized to meet your requirements, for instance with optional operation modes or optional luminaires. From 3 to 10 solar modules.Total height from 3-12 meters.

### BENEFITS

- 100% green solution
- No expenses for cabling - 100% stand alone
- No costs for operation
- Aesthetic design

COLUMN	
Total height	3-10 m ( Bollard 1 m)
Column	Extruded aluminium profile Ø250/4 mm/6 mm
Aluminum parts (recyclable)	Natural Anodized 20my (25 my opt.). Aluminum EN AW 6063-T6.
Hatch / optional USB port	400 x 80 mm
Total weight (kg)	60-120 kg.
EC Certificate of Conformity	EN 40-6/CE

BATTERY	
Technology	AGM Gel, 12 volt, 100 AH. VRLA
Battery Voltage	330x172x222 mm /31,6 kg
Depth of discharge	Calculated to max. 25% pr. cycle
Operating temperature	-15°C- + 50°C
Expected lifetime / functional warranty	5/4 years
Certificate	CE 1188 / 29410
Recyclability	97% recyclable (EC 2006/66)
Optional technologies	AGM, Lead-Acid, Lead-gel, Ni-Mh.

CONTROL UNIT AND POWER MANAGEMENT SYSTEM	
Operation mode	Stand alone, Safe, Active, basic and Remote
Operation Voltage	12V
Operation Temperature	-40°C - + 70°C
Luminaire consumption	250W max. dimmable
Time control	365 days pre-programmed for location / astronomical clock
Charge control	Direct current limited max 250 Wp
LED driver	0 mA - 2000 mA constant current
GPRS WEB Connection	850/900/1800/1900 MHz
Control unit access	USB port. Web connection optional.

SOLAR MODULES	
Technology	Monocrystalline 19,6% Silicium cells
Dimensions	1590 x 166 mm (min. 3 - max 6 modules per side)
Module peak output	44Wp (120-240Wp per side)
Solarcell protection cover	3 mm tempered glass
Operation temperature	-20°C to + 85°C
Certificates	IEC 61215/ IEC 61730 1 and 2

LUMINAIRE	
Type	Wide range of standard luminaires
Technology	LED

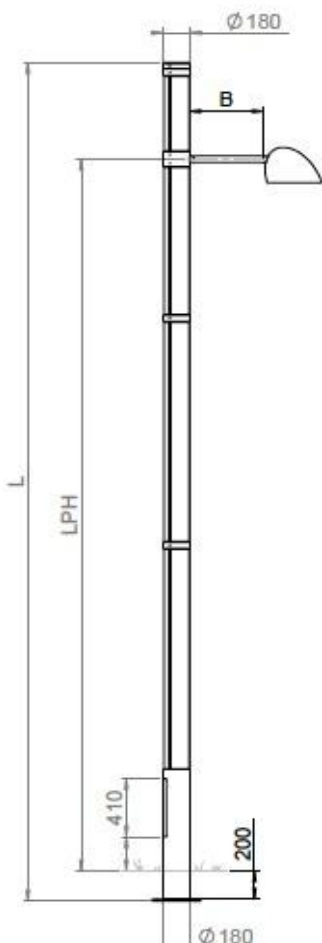
FOUNDATION	
Weight	650 kg.
Dimensions	500 x 600 x 1000 mm
Material	Concrete



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## PLECTRE - COLUMN

### PLECTRE 5000



#### PRODUCT DESCRIPTION

PLECTRE is an independent and self-sufficient solar cell column for professional exterior lighting systems.

PLECTRE is flexible and accommodates most common LED luminaires.

The integrated controller management system allows management of the individual light profile and track operating data, alarms and capacity performance.

The 360 degree column, fully covered in solar cells, ensures maximum uptake of sun throughout the day with a high level of operating reliability.

#### MATERIALS

Due to the choice of materials such as recyclable aluminium and impact-resistant polycarbonate, PLECTRE is a clean, environmentally friendly product:

- 100% CO<sub>2</sub>-neutral
- 16% solar cells
- 100% recyclable materials
- Impact-resistant PC/PMMA
- UV-resistant PMMA
- Integrated light control
- Converter (option)

#### PLECTRE - SOLAR CELL LIGHTING COLUMN - EXAMPLES

ITEM NO.	LSH*	L COLUMN TOTAL	B BRACKET LENGTH	WEIGHT
	MM	MM	MM	KG
50575759	3400	4290	500	53
50575749	5000	5890	500	69

\* LPH = LSH = Light source height



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## PLECTRE - OPERATIONMODES

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PLECTRE is designed to operate in 3 different operation modes:

#### PLUG AND PLAY

#### PLUG AND PLAY

The cable-free solution - requiring nothing else apart from placing the column on its foundation and a battery (or batteries). Thus, the lighting column constantly charges the batteries and draws on these during the evening and night. The batteries are dimensioned to suit the geographical location and hours of lighting desired.

This solution can be set up anywhere with minimal system investment.

Note: This solution entails a risk of a few brief, periodic outages during extended periods of overcast weather or rain/snow. Buildings, vegetation, etc.



Communication (Zigbee between columns up to 400 metres)



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## PLECTRE - OPERATIONMODES

### SAFE

### SAFE

The solution where primary operation is by battery, thus equating to the "Plug and Play" solution. The "Safe" solution must be supplemented by connection to a mains cable (grid), however. Via the integrated controller, it automatically connects to the grid and supply the luminaire from the grid, if required. This prevents any outage at the lighting column, regardless of the weather.

Note: This solution requires both batteries and a connection to the grid. The controller is integrated into the lighting column as standard.

"Safe" mode is a combination of stand-alone and connection to the grid. As priority one, this solution will use the accumulated energy from the battery. Secondly, it will top up from the grid.



Communication (Zigbee between columns up to 400 metres)



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## PLECTRE - OPERATIONMODES

### ACTIVE



Communication (Zigbee between columns up to 400 metres)

### ACTIVE

This solution harnesses the technology of the lighting column to absorb sunlight all year round. During the summer period, the lighting column will produce more energy than it uses, and during the winter period, it will use no more than the maximum capacity it is capable of producing.

This solution makes PLECTRE an "Active" system. This means that, over the year, the lighting column will balance electricity. Generated and used.

Note: This solution requires a cable to and from the lighting column as well as an inverter, which the integral controller in the lighting column is ready to accept. In "Active" mode the lighting column produces energy and sells it to the grid. When operating, the lighting column will buy back the energy needed.

The PV module delivers power to the grid via an inverter and uses energy from the grid when operating (light on) - The grid is used as a battery. This mode requires an inverter in addition to the control unit.



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## PLECTRE - BATTERIES

### DIMENSIONS OF BATTERIES:

Figure 2.0 shows guidelines for the necessary capacity required to operate the PLECTRE columns in "Plug and Play" mode (100% battery back-up).

### EXAMPLES:

Left side of figure 2.0 shows PLECTRE 5000 yearly energy production in different regions [orientation: SE, SW and N]. Right side of figure 2.0 shows the necessary battery capacity [Ah] for columns with the operation profile shown in figure 2.1 [low risk of momentary outages].

Assumptions: 10 hours of operation during the day (dynamic light profile). Luminaire LED - 1.4 Ah/h at 100% operation. Figure 2.1 shows an example of a dynamic light profile with 9 hours of operation and automatic dimming.

Figure 2.0

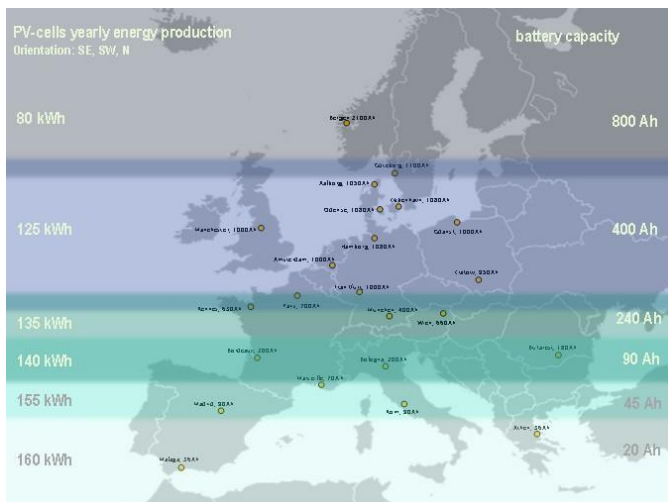


Figure 2.1

Start time	End time	Dimming	time	weight	kWh
06:00	07:00	50%	1	0.5	8
07:00	08:00	100%	1	1	16
18:00	22:00	100%	4	1	64
22:00	23:59	50%	2	0.5	16
00:00	01:00	30%	1	0.3	5
Each days			9		109

### NOTE: NORDIC REGION:

In "Plug and Play" mode, there can be a risk of momentary outages under extreme circumstances. If this is not acceptable, the "Safe" or "Active" operation modes are the recommended solutions. If other modes ("Safe" or "Active") are selected, the battery capacity can be reduced or totally eliminated.



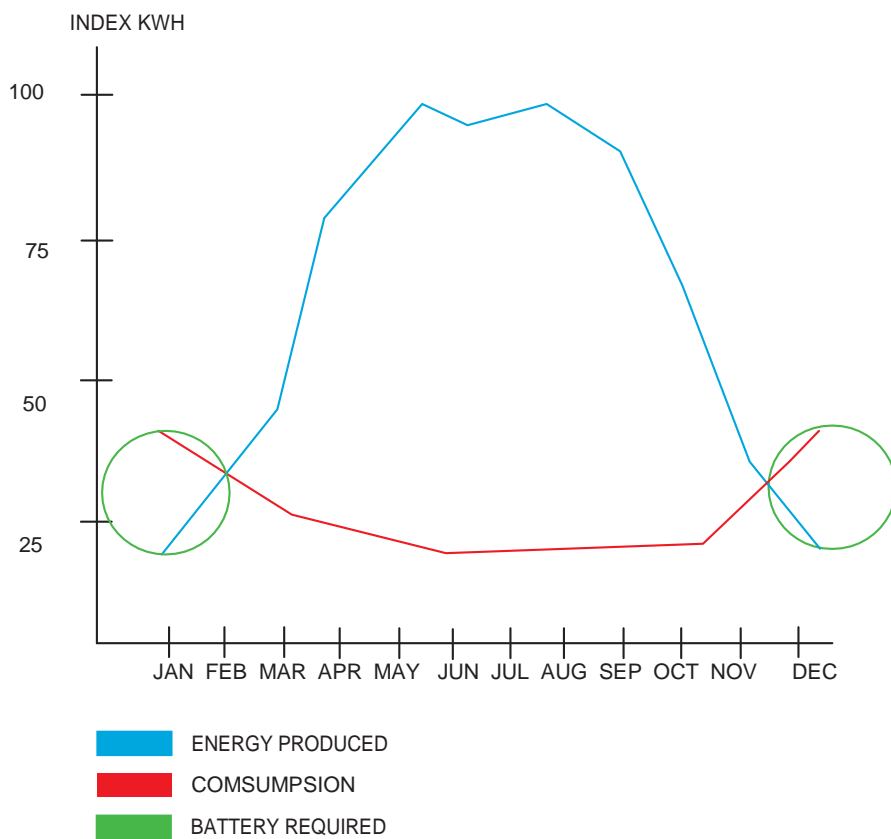


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## PLECTRE - SEASONAL VARIATIONS

The below graph in figure 3 shows an example of seasonal variations for PLECTRE 5000.

Figure 3.0



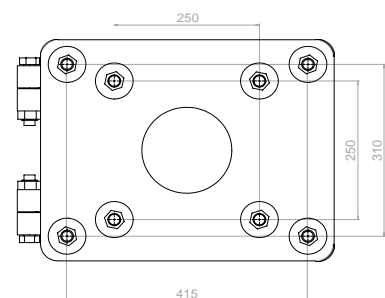


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## PLECTRE - DATA

### PLECTRE 3500 / 5000 COLUMN WITH STRAIGHT SINGLE BRACKET

COLUMN	
Total column length (L)	4300 mm / 5890 mm
Light source height (LSH)	3400 mm / 5000 mm
Diameter of column	Ø180 mm
Length of bracket (B)	500 mm
Installation	Mounted on base plate [see below drawing]
Total weight	53 kg / 69 kg
Surface	Natural anodizing surface 20my
Material	Aluminium EN AW 6063-T6
Solar cells	Poly crystalline solar cells 16% (PV technology)
Cover	PC/PMMA
Light pole versions	PLECTRE comes as standard with a base plate solution in accordance with EN 40-2





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## PLECTRE - DATA

### PLECTRE 3500/5000 - SOLAR CELL TYPE

PV technology	Silicium – solar cells (Poly crystalline solar cells 16%)
Expanded area	1.6 m <sup>2</sup> / 2.3 m <sup>2</sup>
Active area	0.97 m <sup>2</sup> / 1.45 m <sup>2</sup>
Number of PV cells	504 pcs / 756 pcs
PV cell dimensions	39 x 52 mm
Peak power output	180Wp / 270 Wp

### POWER CONTROL

Programmable controller	“Plug and Play” / “Safe” / “Active”
Dynamic light profile	Customer-specific
Light dimming function	Customer-specific - 0-100%
Set-up and programming	Web interface
Motion detector [additional]	Plug in
Logging of information	Standard
Logging of alerts	Standard
Inverter module	Optional [Active mode]