



Sunnapak is high performance, reliable and durable standalone solar solutions for sustainable street lighting in arid, tropical and temperate environments.

- All in one / Plug and Play system
- NiMH battery with 10 years lifetime at 45°C constant for a low cost of ownership
- No battery maintenance requirements
- Complete packages with efficient and durable luminaire (R2L2) suitable for Residential lighting classes and car park

## Applications

- Off grid
- Street
- Cycle path
- Car parks
- Bus stops
- Parks and gardens



## Solar Panel

To convert the solar energy into electricity

## Battery

To store the electricity and make it available throughout the night



## Energy and lighting management system

To ensure an optimised use of the energy

## Plug and play system



## Solar panel information

Monocrystalline high performance panels made of 36 cells

Solar panel IK07 ; Canopy IK08

VOC (open circuit voltage) : 23,04 V

VMPP (maximum power point voltage) : 18,72 V

ISC (short circuit tension) : 2,34 A

IMPP (maximum power point tension) : 2,14 A

Dimension (for one panel) : 776 x 350 mm

No frame to avoid dust accumulation and ensure long lasting performances

## Battery information

Maintenance free NiMH battery with 10 years lifetime at Ta 45°C

Autonomy : 2 days at standard lighting program (depending on location and the state of charge of the battery)

Operating temperature : from -20°C to +70°C  
Eco-designed, recyclable, can be air freighted

## Intelligence information

Patented smart lighting management system varying the lighting intensity according to the time of night and the state of charge of the battery

IP65 rated electronic devices and sealed plugs

Operating temperature range : from -20°C to +70°C

Lightning protection : fuse and PV protection

## Materials and finish

Casing : White ABS PMMA casing (100% recycled)

Structure : Aluminium

All corrosion resistant

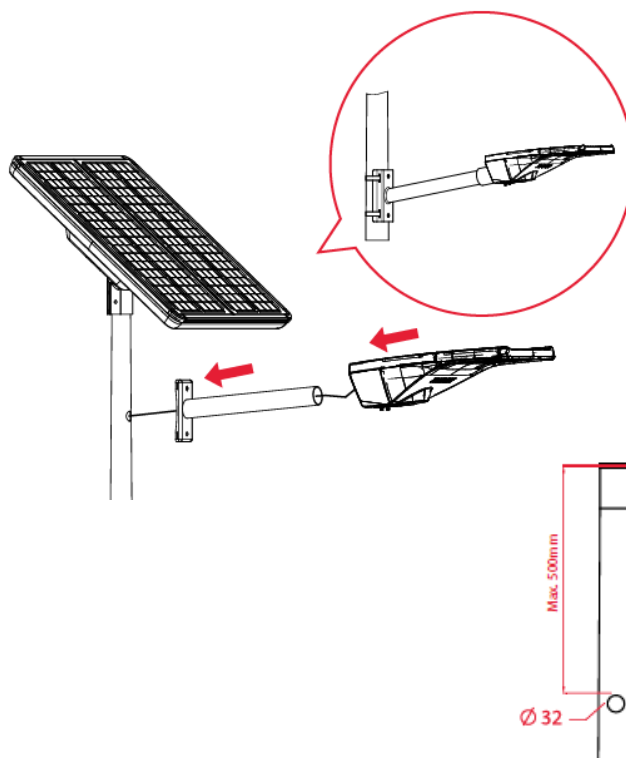
## Installation / Mounting

Battery, power supply and solar panel in one single package top mounted on a Ø60mm spigot (or Ø76mm spigot for Sunnapak 4). Comes pre-cabled including connectors for an easy connection to the luminaire to be side mounted on a Ø60 mm bracket.

Mounting height from 4 to 10 m depending.

Luminaire delivered ready to install.

More details see table.



### Standards

Luminaire



Solar power system



### Light Source

LED 14-52w



Panels : IEC 61215 ; IEC 61730 I and II  
Battery : EN 61427  
Electronics : EN 61000-4-3 ; EN 61000-4-2 ;  
EN 1547 ; EN 55015 ; EN 62493 ; EN 300328



Sunnapak 1



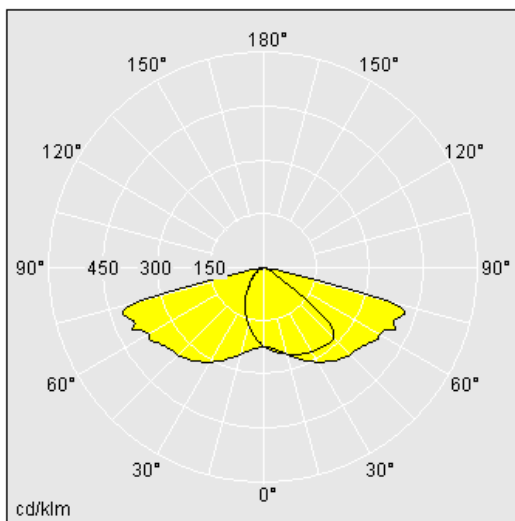
Sunnapak 2



Sunnapak 4

### Specification

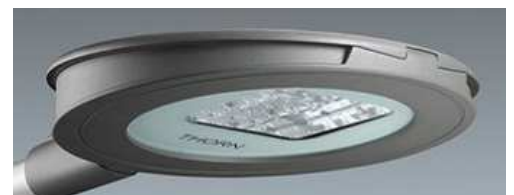
To specify state :  
IP65 solar street system composed of solar panel, a NiMH battery (10 years lifetime at 45°C constant) and lighting management system all in one, top mounted on a 60/76mm pole (check version), combined with efficient (up to 100lm/W) IP66 street luminaires made of aluminium designed for long service life (up to 100 000h B10L90) to cover residential lighting classes.  
As Thorn Sunnapak with R2L2.



NR optic



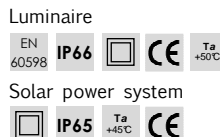
R2L2 is available with motion detection for Sunnapak 2 and Sunnapak 4



Dyana (on request)

# Sunnapak

## Standards



## Light Source

LED 14-52w



Panels : IEC 61215 ; IEC 61730 I and II  
 Battery : EN 61427  
 Electronics : EN 61000-4-3 ; EN 61000-4-2 ;  
 EN 1547 ; EN 55015 ; EN 62493 ; EN 300328

		SUNNAPAK 1	SUNNAPAK 2	SUNNAPAK 4
<i>Solar Power system</i>				
<b>Solar Panel</b> Monocrystalline ; VOC 23,04V ; VMPP 18,72V ; ISC 2,34A ; 36 cells ; IMPP 2,14A <b>Dimensions</b> : 776 x 350 mm	<b>Quantity</b>	1 panel	2 panels	4 panels
	<b>Power</b>	50 Wc	80 Wc	160 Wc
<b>Battery</b> NiMH technology ; White ABS PMMA casing ; <b>Operating Temp.</b> : -20°C to +70°C ; <b>Lifespan</b> : 10 years	<b>Quantity</b>	1 piece	1 piece	2 pieces
	<b>Voltage</b>	12 V	24 V	24 V
	<b>Energy stock</b>	120 Wh	240 Wh	480 Wh
<b>Installation</b>  Pole and bracket not included	<b>Dimensions</b>	397 x 1047 x 131 mm	753 x 824 x 114 mm	1684 x 753 x 114 mm
	<b>SCx</b>	0.40m <sup>2</sup>	0.62m <sup>2</sup>	1.24m <sup>2</sup>
	<b>Mounting height</b>	4 to 6 m	5 to 8 m	6 to 10 m
	<b>Weight</b>	13 kg	19 kg	43 kg
	<b>Mounting spigot</b>	Ø 60mm	Ø 60mm	Ø 76mm

<i>Luminaires</i>				
<b>Standards associated</b>  <i>Common specs :</i> <b>Body</b> : die-cast aluminium powder coated <b>Colour temperature</b> : 4000K Class II Electrical <b>Colour rendering</b> : CRI70 <b>Screws</b> : Stainless steel <b>Optic</b> : NR (narrow road, any other optic on request)	<b>Luminaire name</b>	R2L2	R2L2	R2L2
	<b>Power</b>	Up to 15W	Up to 28W	Up to 52 W
	<b>Quantity of LEDs</b>	12 LED	24 LED	48 LED
	<b>Light output</b>	Up to 1542 Llm	Up to 3077 Llm	Up to 6123 Llm
	<b>Efficacy</b>	103Llm/W	110Llm/W	118Llm/W
	<b>Lifetime</b>	100 000h B10L90	100 000h B10L90	100 000h B10L90
	<b>SCx</b>	0,05 m <sup>2</sup>	0,05 m <sup>2</sup>	0,05 m <sup>2</sup>
	<b>Weight</b>	10 kg	10 kg	10 kg
	<b>Mounting</b>	Side Ø60mm ; Variable tilting from -15° to 0° in 5° steps		
	<b>Quality standards</b>	IP 66, IK08		
	<b>Standard colour</b>	Light grey texturised (close to RAL 9006)	Light grey texturised (close to RAL 9006)	Light grey texturised (close to RAL 9006)
	<b>Motion detection</b>	NO	YES	

Please, for further information, take a contact with agency the more near from you.



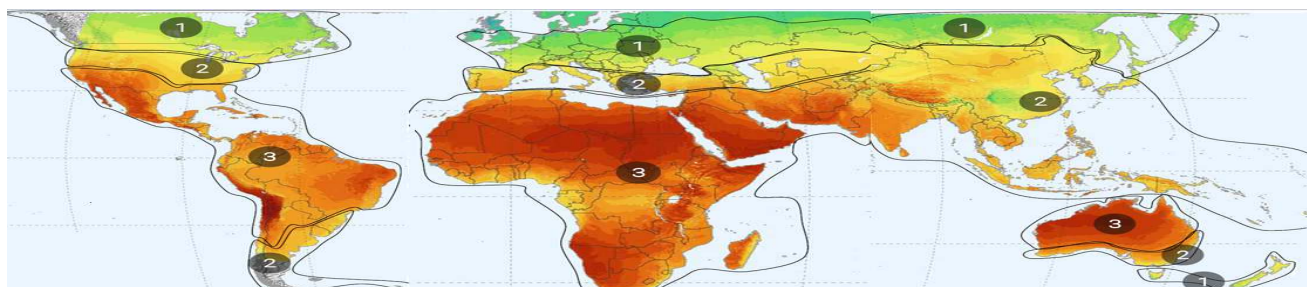
**5 Years Warranty**

As a globally leading luminaire manufacturer, Thorn Lighting provides a five-years warranty for its complete product range  
 Within all European Countries. Effective From 1st May 2015.

[www.thornlighting.com/SUPK](http://www.thornlighting.com/SUPK)

**THORN**  
 LIGHTING PEOPLE

## ZONE 1 - Pole



### Overview

ZONE 1 - Pole	R2L2 12L		R2L2 24L		R2L2 48L	
	Standard	Detection	Standard	Detection	Standard	Detection
Sunnapak 1						
Sunnapak 2	LO	LO		LO		
Sunnapak 4						

Detection : luminaire equipped with infra-red motion sensor to detect pedestrians, cyclists and slow cars up to 30 km/h (when warm)  
 LO : Low Sun program

### Lighting profile



The lighting service varies according to the time of night and the state of charge of battery. To illuminate the environment for sight and safety all night long, please refer to the autonomous study.

### Ordering guide

Zone	Detection	Output flux circa (lm)	Solar system code	Solar system description	Solar Lum code	Solar luminaire description
1 - Pole	NO	1500	96271146	SUNNAPAK 2 PANEL + BATTERY + CONTROL LO	96274624	R2L2 S 12L NR 740 EFL SUNPK CL2
1 - Pole	YES	1500	96274617	SUNNAPAK 2 PANEL+BATTERY+CONTROL+MD LO	96274630	R2L2 S 12L NR 740 SUNPK MLE CL2 MD
1 - Pole	YES	1500	96274617	SUNNAPAK 2 PANEL+BATTERY+CONTROL+MD LO	96274526	R2L2 S 24L NR 740 SUNPK MLE CL2 MD

4 M	SUNNAPAK 1/2 COL 4M D60 + BRA 0.2M R9006 <b>Code SAP : 96272492</b>	SUNNAPAK 1/2 COL 4M D60 + BRA 0.2M R9006 <b>Code SAP : 96272492</b>	SUNNAPAK 4 COL 4M D76 + BRA 0.2M R9006 <b>Code SAP : 96272490</b>
5 M	SUNNAPAK 1/2 COL 5M D60 + BRA 0.2M R9006 <b>Code SAP : 96272504</b>	SUNNAPAK 1/2 COL 5M D60 + BRA 0.2M R9006 <b>Code SAP : 96272504</b>	SUNNAPAK 4 COL 5M D76 + BRA 0.2M R9006 <b>Code SAP : 96272489</b>
6 M	SUNNAPAK 1/2 COL 6M D60 + BRA 0.2M R9006 <b>Code SAP : 96272491</b>	SUNNAPAK 1/2 COL 6M D60 + BRA 0.2M R9006 <b>Code SAP : 96272491</b>	SUNNAPAK 4 COL 6M D76 + BRA 0.2M R9006 <b>Code SAP : 96272488</b>
Bracket only	SUNNAPAK BRA. 0.25M D60 RAL 9006 <b>Code SAP : 96274222</b>		

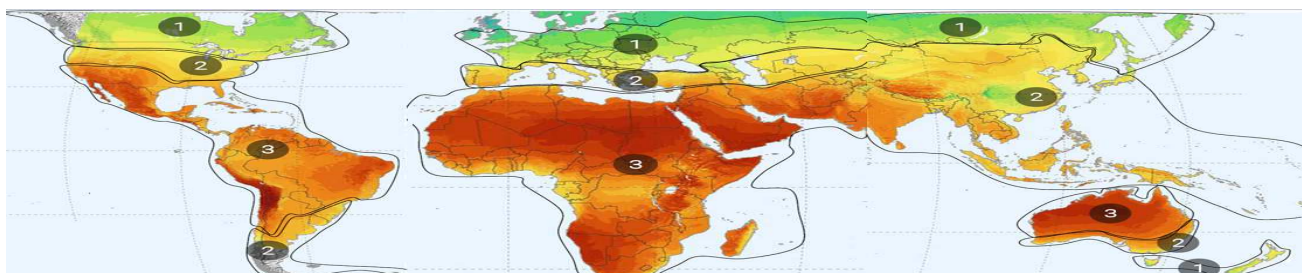


5 Years Warranty

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## ZONE 2 - Tropics

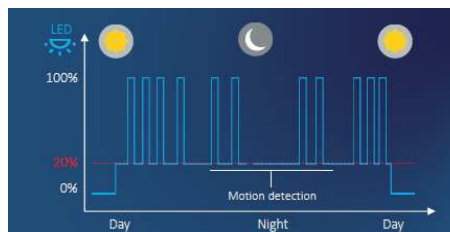


### Overview

ZONE 2 - Tropics	R2L2 12L		R2L2 24L		R2L2 48L	
	Standard	Detection	Standard	Detection	Standard	Detection
Sunnapak 1	LO	LO				
Sunnapak 2	LO	LO	LO	LO		
Sunnapak 4					LO	

Detection : luminaire equipped with infra-red motion sensor to detect pedestrians, cyclists and slow cars up to 30 km/h (when warm)  
 LO : Low Sun program

### Lighting profile



The lighting service varies according to the time of night and the state of charge of battery. To illuminate the environment for sight and safety all night long, please refer to the autonomous study.

### Ordering guide

Zone	Detection	Flux output circa (lm)	Solar system code	Solar system description	Solar lum code	Solar luminaire description
2 - Tropics	NO	1500	96271145	SUNNAPAK 1	96274624	R2L2 S 12L NR 740 EFL SUNPK CL2
2 - Tropics	NO	3000	96271146	SUNNAPAK 2	96274625	R2L2 S 24L NR 740 EFL SUNPK CL2
2 - Tropics	NO	6100	96274620	SUNNAPAK 4	96271152	R2L2 S 48L NR 740 EFL SUNPK CL2
2 - Tropics	NO	1500	96271146	SUNNAPAK 2	96274624	R2L2 S 12L NR 740 EFL SUNPK CL2
2 - Tropics	NO	3000	96274620	SUNNAPAK 4	96271152	R2L2 S 48L NR 740 SUNPK MLE CL2
2 - Tropics	YES	3000	96274617	SUNNAPAK 2	96274526	R2L2 S 24L NR 740 EFL SUNPK CL2 MD
2 - Tropics	YES	1500	96274617	SUNNAPAK 2	96274630	R2L2 S 12L NR 740 SUNPK MLE CL2 MD

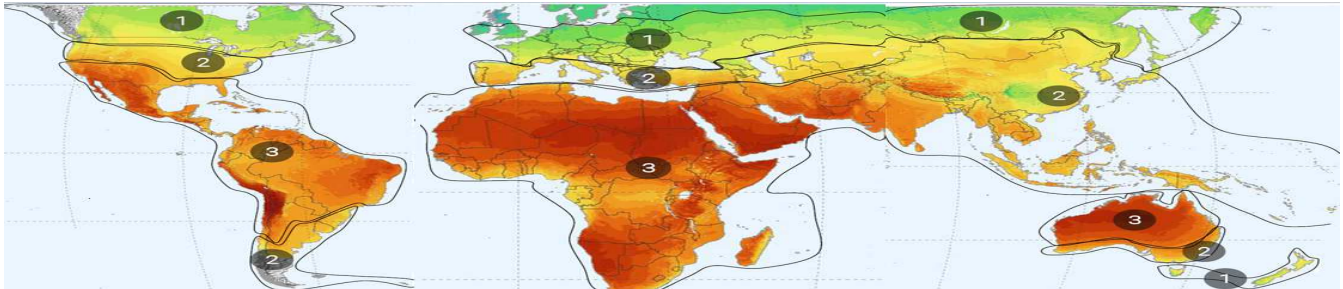
4 M	SUNNAPAK 1/2 COL 4M D60 + BRA 0.2M R9006 <b>Code SAP : 96272492</b>	SUNNAPAK 1/2 COL 4M D60 + BRA 0.2M R9006 <b>Code SAP : 96272492</b>	SUNNAPAK 4 COL 4M D76 + BRA 0.2M R9006 <b>Code SAP : 96272490</b>
5 M	SUNNAPAK 1/2 COL 5M D60 + BRA 0.2M R9006 <b>Code SAP : 96272504</b>	SUNNAPAK 1/2 COL 5M D60 + BRA 0.2M R9006 <b>Code SAP : 96272504</b>	SUNNAPAK 4 COL 5M D76 + BRA 0.2M R9006 <b>Code SAP : 96272489</b>
6 M	SUNNAPAK 1/2 COL 6M D60 + BRA 0.2M R9006 <b>Code SAP : 96272491</b>	SUNNAPAK 1/2 COL 6M D60 + BRA 0.2M R9006 <b>Code SAP : 96272491</b>	SUNNAPAK 4 COL 6M D76 + BRA 0.2M R9006 <b>Code SAP : 96272488</b>
Bracket only	SUNNAPAK BRA. 0.25M D60 RAL 9006 <b>Code SAP : 96274222</b>		



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## ZONE 3 - Equator



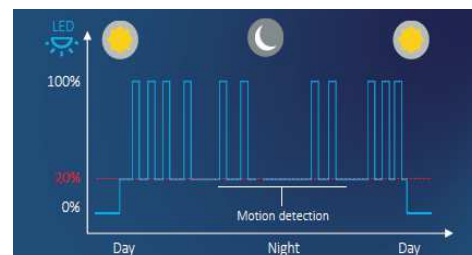
### Overview

ZONE 3 - Equator	R2L2 12L		R2L2 24L		R2L2 48L	
	Standard	Detection	Standard	Detection	Standard	Detection
Sunnapak 1	HI					
Sunnapak 2	HI	HI	HI	HI		
Sunnapak 4					HI	

Detection : luminaire equipped with infra-red motion sensor to detect pedestrians, cyclists and slow cars up to 30 km/h (when warm)

HI : High Sun program

### Lighting profile



The lighting service varies according to the time of night and the state of charge of battery. To illuminate the environment for sight and safety all night long, please refer to the autonomous study.

### Ordering guide

Zone	Detection	Flux output circa (lm)	Solar system code	Solar system description	Solar luminaire code	Solar luminaire description
3 - Equator	NO	1500	96274614	SUNNAPAK 1 PANEL + BATTERY + CONTROL HI	96274624	R2L2 S 12L NR 740 EFL SUNPK CL2
3 - Equator	NO	3000	96274615	SUNNAPAK 2 PANEL + BATTERY + CONTROL HI	96274625	R2L2 S 24L NR 740 EFL SUNPK CL2
3 - Equator	NO	6100	96274616	SUNNAPAK 4 PANEL + BATTERY + CONTROL HI	96271152	R2L2 S 48L NR 740 EFL SUNPK CL2
3 - Equator	NO	1500	96274615	SUNNAPAK 2 PANEL + BATTERY + CONTROL HI	96274624	R2L2 S 12L NR 740 EFL SUNPK CL2
3 - Equator	YES	3000	96274612	SUNNAPAK 2 PANEL+BATTERY+CONTROL+MD HI	96274526	R2L2 S 24L NR 740 EFL SUNPK CL2 MD
3 - Equator	YES	1500	96274612	SUNNAPAK 2 PANEL+BATTERY+CONTROL+MD HI	96274630	R2L2 S 12L NR 740 SUNPK MLE CL2 MD

4 M	SUNNAPAK 1/2 COL 4M D60 + BRA 0.2M R9006 <b>Code SAP : 96272492</b>	SUNNAPAK 1/2 COL 4M D60 + BRA 0.2M R9006 <b>Code SAP : 96272492</b>	SUNNAPAK 4 COL 4M D76 + BRA 0.2M R9006 <b>Code SAP : 96272490</b>
5 M	SUNNAPAK 1/2 COL 5M D60 + BRA 0.2M R9006 <b>Code SAP : 96272504</b>	SUNNAPAK 1/2 COL 5M D60 + BRA 0.2M R9006 <b>Code SAP : 96272504</b>	SUNNAPAK 4 COL 5M D76 + BRA 0.2M R9006 <b>Code SAP : 96272489</b>
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Bracket only	SUNNAPAK BRA. 0.25M D60 RAL 9006 <b>Code SAP : 96274222</b>		



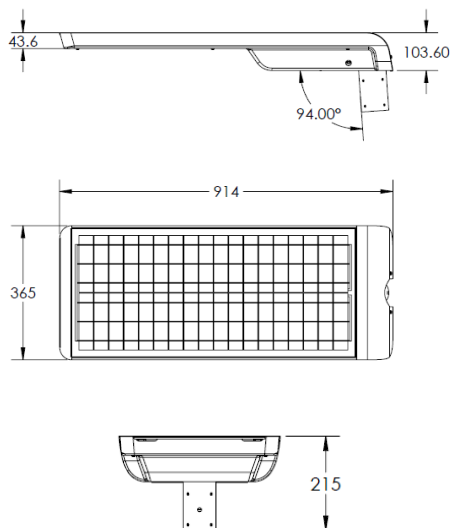
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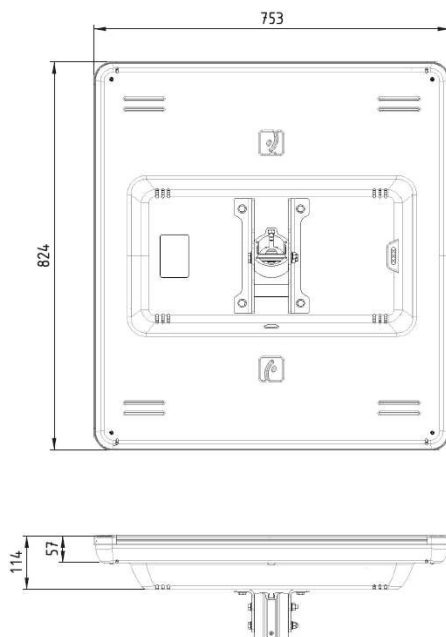
## Solar panel dimensions

### Solar Power system

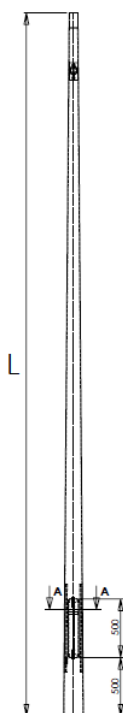
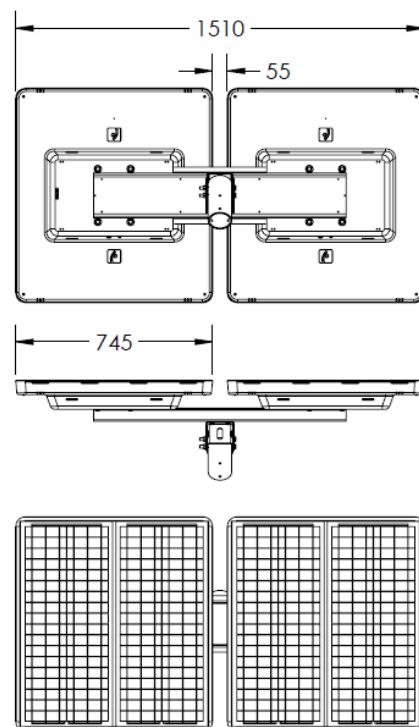
Sunnapak 1



Sunnapak 2



Sunnapak 4



Dimensions	
L	A Ø
4	75
5	85
6	85

