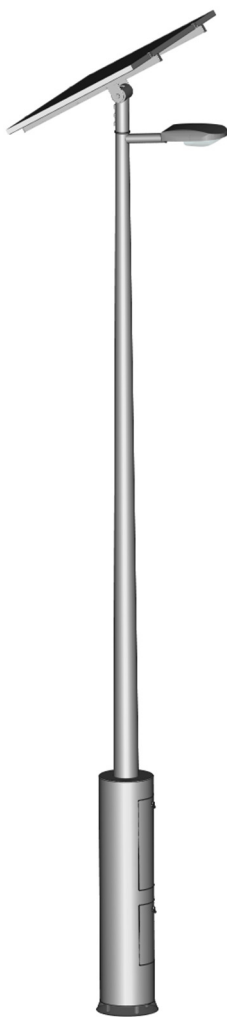


VERTEX® STREETLED SOLAR LIGHTING SYSTEM

Stand-Alone Solar Powered LED Lighting System



Product Overview

Mission critical lighting for discerning organisations that value reliability & performance.

The Vertex® solar lighting system comprises the StreetLED luminaire mounted on an enlarged base fixed solar pole with the solar panel array attached at the top.

The batteries, Charge controller and Vertex® EMS (energy management systems) are securely housed in the enlarged base of the pole (above ground) behind a sturdy steel locked door fastened using the Rivlok™ security system.

Performance Summary

Designed and Assembled in Australia

Autonomy: Up to 5 Days

Lumen Output: Up to 3,500 Lumens

Colour Rendering Index: Minimum 70 CRI

Colour Temperature: 4000K

Warranty: 5 Year Limited Warranty with Performance Guarantee

Specification Selection Criteria								
Configuration Code:								
Example: VERT-STRLED-6M-160W-135Ah-28W-STD-40K-PER-HDG-D2D								
Product	Luminaire Type	Luminaire Arrangement	Pole Height	PV Array (Watts)	Battery System	Luminaire Power Setting	Optic Distribution	Luminaire Colour Temperature (CCT)
Vertex® [VERT]	StreetLED [STRLED]	SINGLE [1] TWIN [2]	6.0m [6M]	160W [160W]	12V 135Ah [135Ah]	28W [28W]	Standard Visor [STD]	4000K [40K]
			8.0m [8M]	205W [205W]	12V 210Ah [210Ah]	Profiled [PRF]	Aeroscreen Visor [AER]	
			10.0m [10M]	275W [275W]				
				290W [290W]				
Footing Type ^	Pole Finish	Power Profile+	Custom Options					
Pier Cage [PER] Slab Cage [SLB] Block [BLK]	Galvanised [HDG] Powder coat [PCT]	Dusk-Dawn [D2D] 5-Hour / Off [5H0] 5-Hour / Dim [5HD] Other / Custom [CUS]						

Vertex® Solar Lighting Systems are scaled to suit application and location using NASA solar radiation data based on conditions recorded at location of installation.

For assistance in selecting the appropriate specification criteria to suit your project, please contact Orca Solar Lighting.

Standard Visor



Aeroscreen Visor



PRODUCT DESCRIPTION

Engineered and crafted in Australia, the StreetLED MKII is a high-performance luminaire designed specifically to meet Australian/New Zealand minor road lighting requirements.

The optical system with LED light source is optimised to provide the maximum spacing complying with AS1158-3.1 Category P.

The optical chamber sealed to IP66 ingress protection and the self-cleaning visor minimises light loss due to dirt accumulation, reducing maintenance and resulting in a highly energy efficient luminaire

PRODUCT / PERFORMANCE SUMMARY

- High performance street luminaire
- Designed specifically to meet Australian/New Zealand road lighting standards
- The optics and LED light source are optimised to provide the maximum spacings complying with AS1158-3.1 Category P
- Available with self-cleaning Standard or Aeroscreen visor
- The self-cleaning visor minimises light loss due to dirt accumulation, resulting in a highly energy efficient and low maintenance luminaire
- Optical chamber sealed to IP66 ingress protection
- Minimum 70 CRI
- CCT 4000K (standard)

Mechanical Characteristics:

- Pressure die-cast aluminium body (marine grade)
- Weight: 6.1kg
- Self-cleaning acrylic visor (Standard visor)
- IP66 optical chamber
- Stainless 304 steel access clips
- Easy to replace visor hinged with quick access clips
- 27mm to 34mm Spigot Entry
- Hinged driver compartment cover with quick access clips

Power Setting	4000K
	Initial Lumens*
14W	2,146 (Standard Visor)
14W	2,068 (Aeroscreen Visor)
28W	3,466 (Aeroscreen Visor)

* Estimated lumen output at designated power level de-rated from initial (28 Watt)

Optical Characteristics:

- CCT: Available in 4000K and 3000K
- CRI: > 70
- Optical chamber sealed to IP66

Environmental & Standards:

- Ambient Operation Temps: -10 to 40°C
- EMC compliant: AS/NZS CISPR15, AS/NZS 60598.1 & AS/NZS TS 1158.6: Luminaires - Performance

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System Design Overview

PV Array:

Photovoltaic panel(s) are scaled sufficiently to match power load location conditions and autonomy requirements and are supplied with 12 years warranty and a 25 Year performance guarantee to a minimum 80% efficiency.

PV Array Configuration Options					
Power Option	Dimensions	Weight	Cell Count	Cell Type	Cell Efficiency (%)
160W	1475 x 670	36	36	Monocrystalline	18.9%
205W	1580 x 808	72	72	Monocrystalline	18.9%
275W	1650 x 992	60	60	Polycrystalline	16.8%
290W	1698 x 1004	60	60	Multicrystalline	17.6%

Battery System:

Long life Advanced Carbon GEL VRLA Gel batteries designed for -20-55°C operating temperatures. Battery systems are sized and quantified specific to location conditions and autonomy requirements in accordance with AS/NZS 4509 and AS/NZS 5139.

Battery System Configuration Options							
System Config.	System Voltage	Cell No.	Rated Ah Capacity (C120)	Cycle Life (50% DoD 25°C)	Cell Dimensions and Weight		Design Life (Years)
Single 135Ah	12VDC	1	135Ah	4,450	394L x 125W x 297H	40 kg Ea.	16 Years
Twin 210Ah	12VDC	2	210Ah	5,950	276L x 184W x 265H	32 kg Ea.	20 Years
Twin 135Ah	24VDC	2	135Ah	4,450	394L x 125W x 297H	40 kg Ea.	16 Years
Quad 210Ah	24VDC	4	210Ah	5,950	276L x 184W x 265H	32 kg Ea.	20 Years

Vertex® Battery systems are supplied with a 5 Year limited replacement warranty and an additional 5 Year replacement Pro-Rate warranty subject to terms and conditions (available upon request)

Energy Management System:

Solar Charge Controller

High Efficiency, Advanced MPPT (maximum power point tracking) with short circuit and over current protection. Minimum efficiency of 99.5% and automatic limit function of maximum PV input power, ensuring no overload under any circumstance.

LED Driver and Drive Controller

Wide input voltage and high precision constant current control with linear PWM duty cycle dimming control. Minimum 92% efficiency under -40-65° ambient conditions Four function drive control with pre-set dimming level and timeframe programming including autonomous power adjustment synced to battery voltage and ambient temperature conditions.

DC Rated Switchgear and Mounting Panel:

Miniature Circuit Breaker (MCB) DIN Rail mounted safety switches fitted to a fire-retardant mounting panel. Vertex® energy management systems are designed and assembled in Australia conforming to all relevant Australian standards including AS/NZS 3000 Wiring Rules, AS/NZS 5033 PV Array Installation and Safety Standards, AS/NZ 5139 Safety of Battery Systems, and AS 4509.2 standalone power systems design standards

Vertex® Energy Management Systems and their components are supplied pre-assembled and pre-configured with a 5 Year limited warranty.

Enlarged Base Solar Poles:

Vertex® solar lighting systems use custom designed round tapered enlarged base HDG fixed solar poles. The enlarged base section of the pole securely houses the Vertex® Energy management and battery systems using Southco® VISE ACTION® stainless steel security locks on all access doors.

The enlarged base section is designed to ensure sufficient ventilation to the batteries and energy management system components. Having the battery system and energy management system located in the base of the pole makes installation, maintenance, and component replacement quick and easy.

Vertex® HDG steel Enlarged Base solar Light Poles and foundation cages are designed in accordance with AS/NZS 4100, AS/NZS 3679, AS/NZS 1163 and AS/NZS 1154.

Battery systems are safely and securely placed on weight rated shelves above the Vertex® Energy Management System which is fixed to a purpose-built mounting bracket positioned for easy access during installation and maintenance.

Vertex® HDG Solar Light Poles are supplied with a 10 Year Warranty (Powder Coat Finish warranties vary depending on site conditions, consult Orca Solar Lighting for clarification)

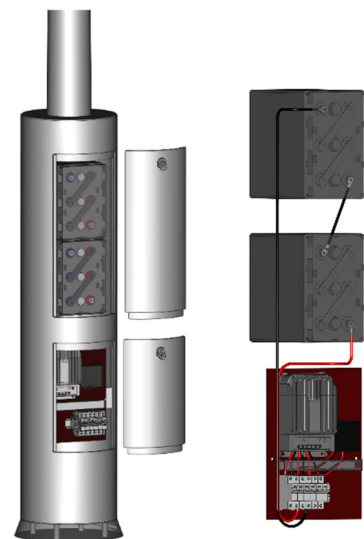
System Autonomy (Battery Backup):

All Vertex® solar lighting systems are custom designed utilizing NASA solar radiation and weather pattern data for the specified location to ensure year-round reliable operating performance whether the location is as far south as Hobart or as far North as Darwin.

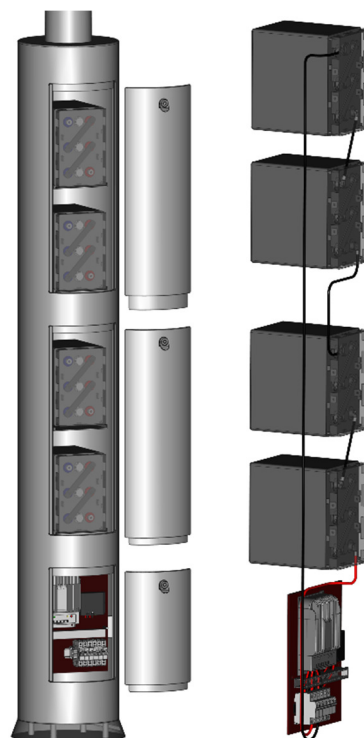
Vertex® solar lighting systems are designed in accordance with AS/NZS 4509.2 to ensure the photovoltaic is sized correctly and the daily depth of discharge in the batteries is minimal, preserving the life of the battery. System sizing calculation reports can be supplied upon request to verify solar and battery system sufficiency.

A five-year performance guarantee on all the Vertex® solar lighting systems is offered. The performance guarantee covers the duration the light will be on each night, the percentage of illumination for these hours and the autonomy (battery back-up). This does not guarantee the system will never go into low voltage disconnect (temporary shut-down usually caused by abnormally prolonged bad weather outside of the NASA Modelling data).

To qualify for this performance guarantee, Vertex® solar lighting system need to be installed as per the provided installation checklist and the maintenance regime documented for the project must be adhered to at all specified intervals.



12VDC 210Ah Battery System Enlarged Base



24VDC 210Ah Battery System Enlarged Base



VISE ACTION® Compression Latches by Southco®