JUNO™ SERIES

MODULAR VERTICAL SOLAR LIGHTING PLATFORM

3-NIGHT AUTONOMY RECOVERY STANDARD

JUNO is engineered for extreme flexibility. The modular vertical solar wraps are designed for Easy Retrofit onto existing structural poles or New Construction deployments. By integrating 360° shingled PV, JUNO captures maximum ambient light without the aesthetic or wind-load impact of traditional flat panels.

MARKET APPLICATIONS

- Mixed-Use Urban Centers
- University & Corporate Campuses
- Integrated Mobility & Public Hubs
- Community & Residential Connectivity

RETROFIT COMPATIBLE

SMART MONITORING

ENGINEERING STANDARD

JUNO systems are sized to provide a strict 3-night autonomy reserve based on an 80% DOD standard. Our vertical HPBC modules are specifically engineered to provide complete reserve recovery (3 full days of energy) within a single 3.3h sunlight window (Zone B).

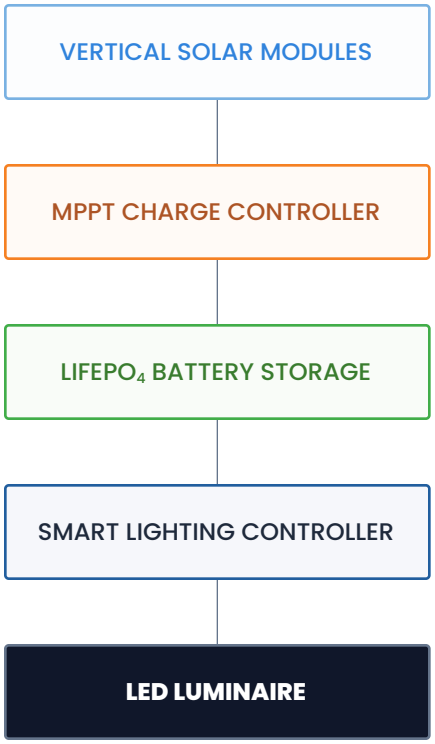
AUTONOMY STANDARD

3 Nights Standard

USABLE CAPACITY

80% Depth of Discharge

SYSTEM ARCHITECTURE



SYSTEM YIELD EFFICIENCY

90%

TECHNICAL SPECIFICATIONS

• LED LUMINAIRE

System Efficacy	150–190 lm/W
LED Chipset	Cree / Osam / Lumileds / Nichia / Seoul
Power Consumption	20W / 30W / 40W / 60W
Color Temp (CCT)	27K / 30K / 40K / 50K
Light Distribution	Type II, Type III
Color Rendering (CRI)	≥ 70 (80 opt.)
Lifespan (LM80)	100,000 Hours
Luminaire Warranty	10 Years

• BATTERY STORAGE

Battery Chemistry	$LiFePO_4$
Cycle Life (80% DOD)	≥ 3,000 Cycles
Protection	Smart BMS Active Control
Battery Warranty	8 Years

• VERTICAL SOLAR PANEL

Technology	HPBC Monocrystalline Mono
Vertical Factor	35% Effective Yield
Orientation	360° Omnidirectional
Solar Warranty	20 Years

• MECHANICAL & MOUNTING

Housing Material	ADC12 + 6063 Extrusion
Finish Color	Black std. (Sliver or Custom opt.)
Hardware	Stainless Steel
Mounting Type	Slip Fitter (SF)
Wind Load Rating	127 mph
Ingress / Impact	IP65 / IK08

• MPPT CONTROLLER

Tracking Efficiency	> 99%
Control System	MPPT std. (Wireless Zigbee opt.)
Dimming	4-Step Programmable
MPPT Warranty	8 Years

- **Wireless Control Available: Monitoring, GPS tracking, Alerts**
- **Motion Sensor Available**

Specifications represent standard configurations and are subject to final engineering and site-specific conditions.
Custom configurations are available upon request.

ENGINEERING SIZING BASIS

CUSTOM SIZING EXAMPLE (JUNO-40 @ SMART PROFILE)

LED Power (Max)	40 W
Smart Profile (4h 100% | 2h 50% | 6h 10%)	12 Hours
Integrated PIR Motion Sensor	Included / Active
Daily Energy Consumption	224 Wh
Required Battery Storage (3 Nights @ 80% DOD)	(224 Wh x 3) / 0.8 = 840 Wh
Actual Battery Supplied (Optimized)	960 Wh (12.8V 75Ah)
Required Solar Generation (Zone C)	224 Wh / Day
Vertical Recovery Sizing (224Wh x 3 ÷ 4.5h ÷ 35% eff)	427 W Required
Standard Solar Module Selected	500 W Panel

RESULT: CONFIGURED FOR 3-DAY AUTONOMY. BATTERY MATCHES MUNICIPAL SAFETY STANDARDS.

CONFIGURATION GROUP MATRIX

LED LOAD	SOLAR MODULE	BATTERY CAPACITY	ENERGY STORAGE	AUTONOMY DAYS	REC. POLE HEIGHT
20 W	**200 W**	12.8V 40Ah	**512 Wh**	3 Nights	20 ft
30 W	**200 W**	12.8V 50Ah	**768 Wh**	3 Nights	26 ft
40 W	**200 W (x2)**	12.8V 40Ah (x2)	**960 Wh**	3 Nights	32 ft
50 W	**200 W (x2)**	12.8V 50Ah (x2)	**1920 Wh**	3 Nights	40 ft

MANDATORY NOTE:

The values above represent standard factory configurations designed to meet or exceed a minimum 3-night autonomy target. Autonomy calculations are based on a 12-hour nightly profile: 3h @ 100%, 3h @ 50%, 6h @ 10% (5.1 equivalent full-load hours). Solar sizing assumes 4.92 peak sun hours (PSH) and typical system losses. Battery capacities are nominal; actual performance varies with DoD, temperature, and site-specific conditions.

Motion sensor activates 100% during occupancy, then returns to preset level.

As a direct manufacturer, we provide full system customization to meet project-specific environmental requirements.

U.S. SOLAR DESIGN ZONES

ZONE A – NORTHERN / LOW SUN

2.4 sun hours. Conservative winter baseline for northern states.

Design approach: Largest panel and battery reserve.

ZONE B – CENTRAL / MODERATE SUN

3.3 sun hours. Balanced winter design basis for central U.S. applications.

Design approach: Balanced solar and battery sizing.

ZONE C – SOUTHERN / HIGHER SUN

4.4 sun hours. Reliable winter design basis for southern states.

Design approach: Optimized panel size with high recharge margin.

ZONE D – EXTREME CONDITIONS

1.5 sun hours. Project-specific baseline for Alaska, mountain regions, etc.

Design approach: Maximum custom engineering basis.

FACTORY-SET DIMMING SCHEDULE

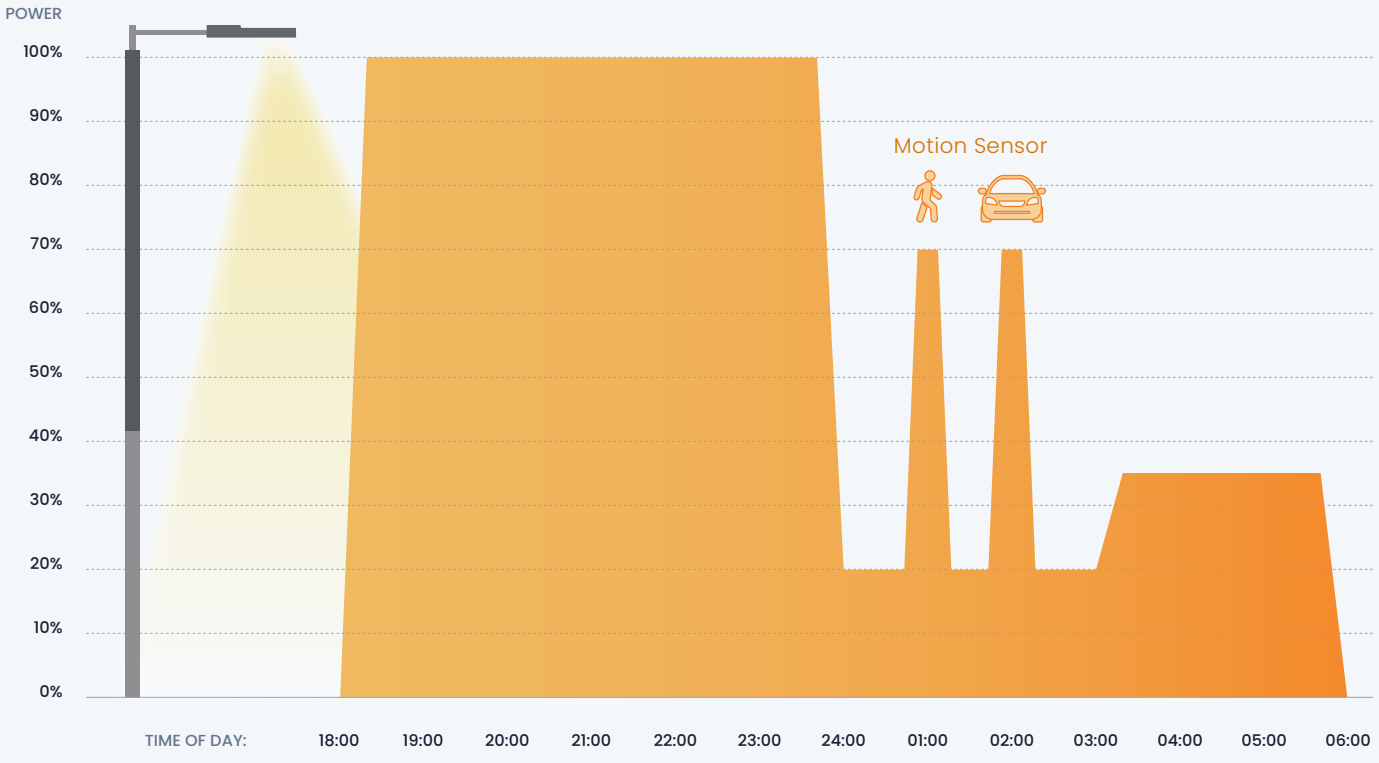


Chart metrics for reference only, custom schedule set as required.

SPECIFICATIONS — SOLAR MODULES

VERTICAL SOLAR PANEL – COMPARISON TABLE (LOW OUTPUT SERIES)

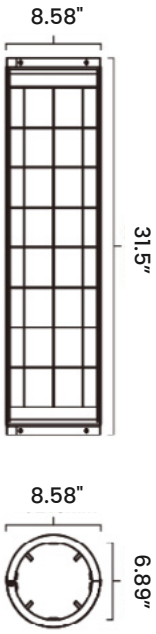
(18V Class)

CATEGORY	SPECIFICATION	JUNO-PV100-18	JUNO-PV150-18	JUNO-PV200-18
Electrical	Power (Pmax)	100 W	150 W	200 W
	Open Circuit Voltage (Voc)	22 V	22 V	22 V
	Short Circuit Current (Isc)	5.63 A	6.75 A	9 A
	Max Power Voltage (Vmp)	18.83 V	18.83 V	18.83 V
	Max Power Current (Imp)	5.31 A	6.37 A	8.5 A
	Cell Efficiency	>26%	>26%	>26%
	Operating Temperature	-40°F to 185°F		
	System Voltage	1000 V DC (IEC) / 1500 V DC (UL)		
	Tolerance	-3% ~ +3%		
Component	Cell Type	HPBC Mono	HPBC Mono	HPBC Mono
	Dimensions (Ø × H)	Ø6.5" × 31.5"	Ø6.5 × 47.2"	Ø6.5" × 63"
	Weight	8.5 lbs	10.5 lbs	13.5 lbs
	Installation Ø Range	Ø2.36" — Ø6.61"	Ø2.36" — Ø6.61"	Ø2.36" — Ø6.61"
	Panel Sides	6		
	Max Parallel Quantity	5		
	Junction Box Rating	IP66		
	Wind Load	57 m/s		
	Salt Spray Test	1000 hrs		
Materials	Solar Cell	Mono Cell		
	Glass	Tempered Glass (0.125")		
	EVA	High Transmittance, Anti-Oxidation, Anti-Corrosion, UV Resistant		
	TPE (Black)	High Temperature Resistance, Fatigue Resistance, Impact Resistance		
Temp. Coeff.	Pmax	-0.47%/°C		
	Voc	-0.34%/°C		
	Isc	0.045%/°C		

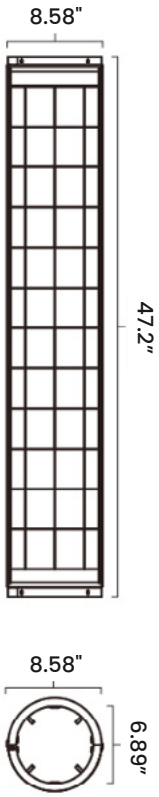
DIMESIONS — LED LUMINAIRE

JUNO-PV SOLAR MODULES

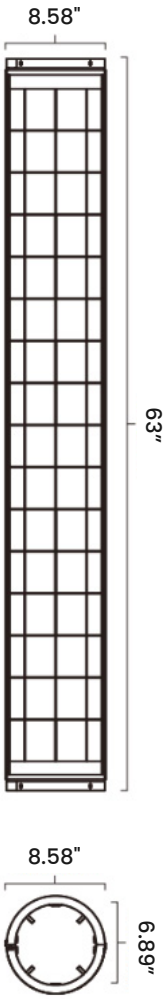
PV-100



PV-150



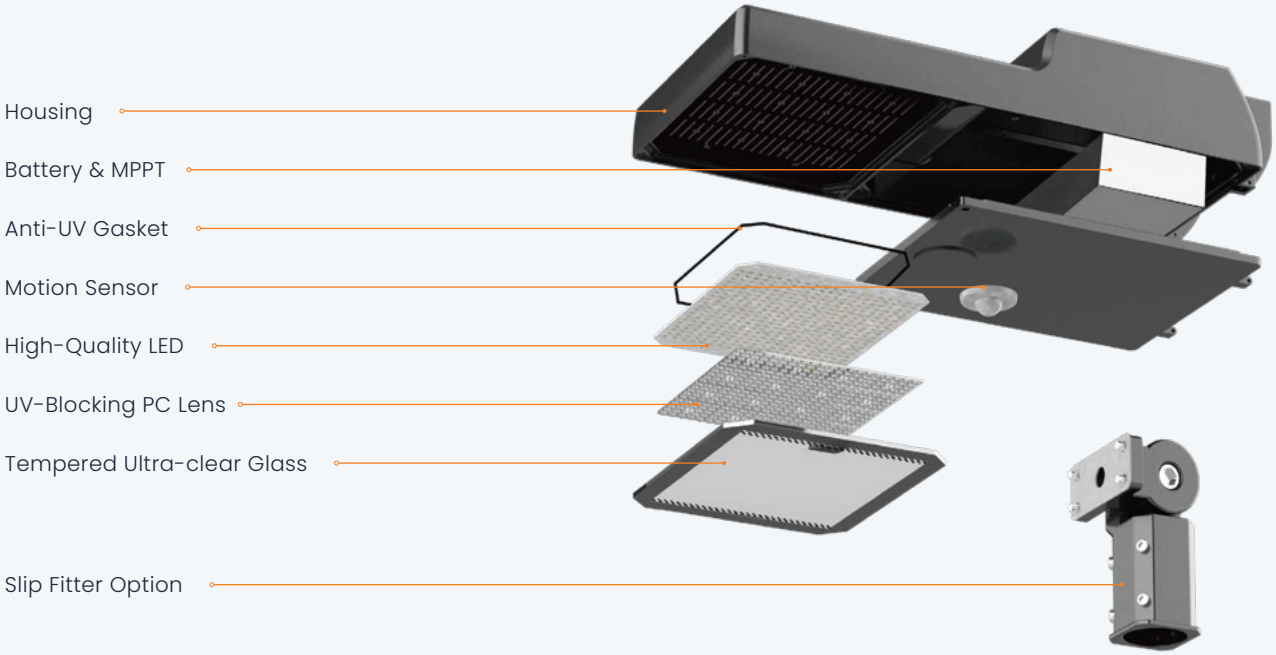
PV-160



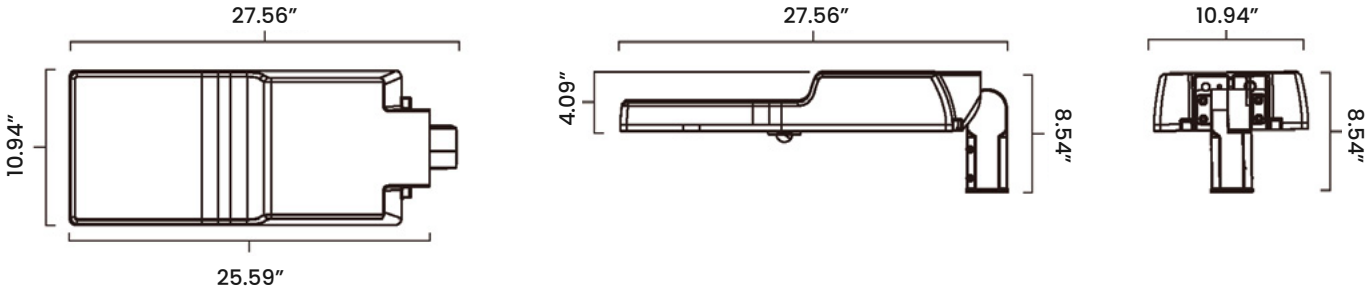
THE APOLLO

The Apollo LED luminaire is constructed with a die-cast ADC12 aluminum housing and finished with a high-performance electrostatic coating, ensuring durability in high-temperature and high-humidity environments. Optical components include tempered glass and UV-resistant polycarbonate (PC) lenses, maintaining long-term light transmission and performance without material degradation.

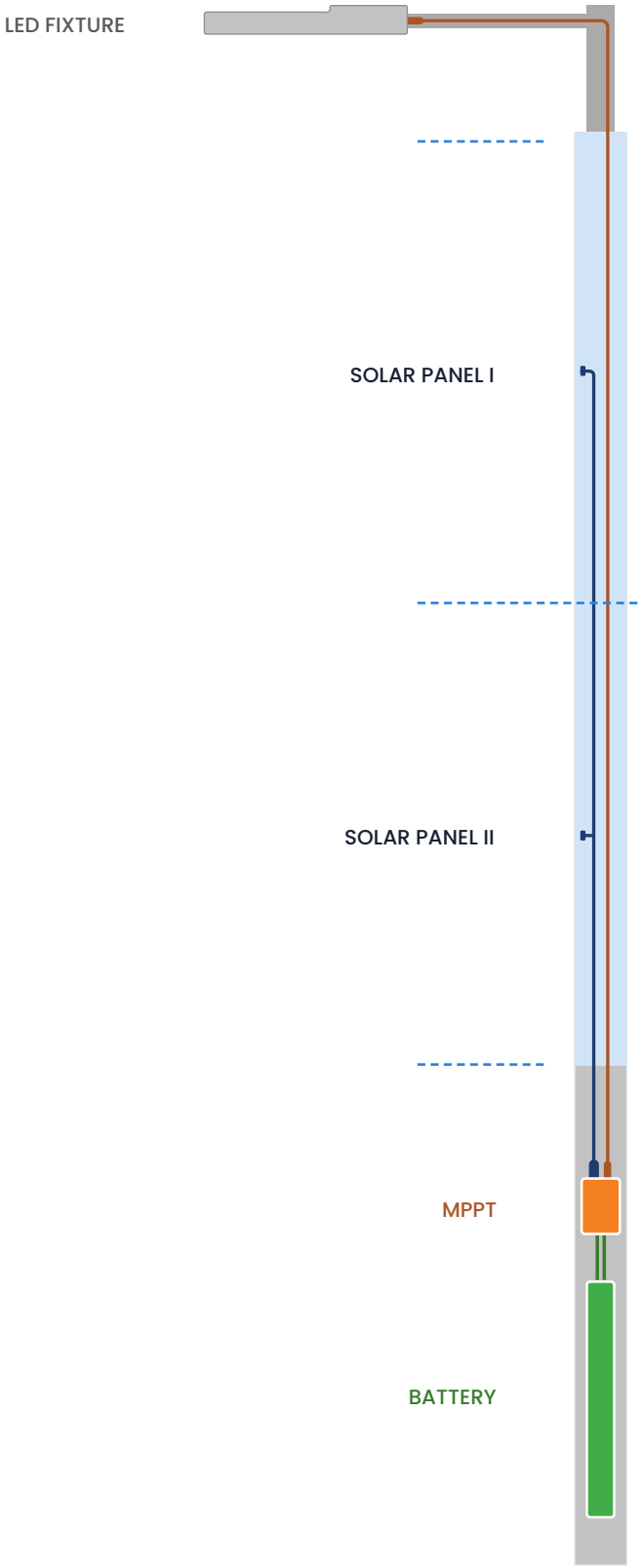
A streamlined housing profile reduces wind load and limits dust accumulation, supporting consistent thermal management and system efficiency. The integrated large-cavity design allows for internal placement of batteries and control components, optimizing space utilization while maintaining a clean, self-contained form factor.



JUNO-APOLLO LED LUMINAIRE



WIRING DIAGRAM



ORDERING INFORMATION

SERIES	CONFIG	WATTAGE	CCT	OPTICS	FINISH	MOUNTING	OPTIONS
JUNO	S (Single) D (Double)	20W 30W 40W 60W	27K 30K 40K (Standard) 50K	T2 (Type II) T3 (Type III)	BLK (Black)	SF (Slip Fitter)	NONE (Standard) MOT (Motion Sensor) SMC (Smart Control) MON (Monitor)

Note: Recommended 30W/40W standard configurations.

EXAMPLE PART NUMBER JUNO - S - 40W - 40K - T2 - BLK - SF | QTY: 20

FIXTURE SCHEDULE

TYPE	PART NUMBER	QTY

Final configuration shall be verified against project-specific electrical and photometric requirements.

Custom configurations are available upon request.

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