

# ARC Wind — Horizontal Axis Turbine

Deployable 1kW Horizontal Wind Turbine | 6-Blade | Carbon Fibre Poles | HSR Compatible

## OVERVIEW

The ARC Wind Horizontal is a rugged, portable 1kW six-blade horizontal-axis wind turbine designed for tactical, construction, and remote deployment. The complete system — turbine, carbon fibre poles, MPPT controller, and cables — packs into a single Pelican 1730-style transport case and deploys in under five minutes.

The modular carbon fibre pole system uses 750mm sections with pre-installed 3-core silicone cabling and blind-mate IP65 connectors at each junction. Deployed height is 3.0 to 4.5m depending on the number of pole sections used.

The integrated MPPT wind controller includes overvoltage, overcurrent, and cut-in protection. Output connects directly to the 24V wind input on any Powapacs HSR unit. Multiple ARC Wind units can be daisy-chained to a single HSR.

Rated to 40 m/s survival wind speed. Altitude operation up to 3,500m. CE and UKCA self-certified. UKCA, CE, EMC, LVD, and RoHS compliant.

Patent Pending: GB2509422.0.



<b>1,000 W</b> Rated Power	<b>24V DC</b> Output Voltage	<b>&lt;5 min</b> Deploy Time	<b>&lt;=25 kg</b> System Weight
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## TECHNICAL SPECIFICATIONS

SPECIFICATION	VALUE	SPECIFICATION	VALUE
System Type	6-blade horizontal-axis wind turbine	Pole Material	Carbon fibre
Rated Power	1,000W (1kW)	Pole OD / ID	55 mm / 52 mm
Nominal Voltage	24V DC	Locking System	Bayonet or push-pin type
Power Conversion	Internal MPPT with integrated 3-phase rectifier	Deployed Height	3.0 - 4.5 m (dependent on pole sections)
Deploy Time	Under 5 minutes	Case Type	Pelican 1730-style rugged case
System Weight	<=25 kg (turbine, poles, controller, case)	Case Dimensions	952 x 689 x 365 mm
Generator Type	3-phase AC permanent magnet (PMG)	Anchoring	4 x corner D-rings, optional ground screws
Controller Type	Integrated MPPT wind charge controller	DC Output Connector	XT60 or SP21 (IP-rated 2-pin)
Regulation	MPPT with overvoltage, overcurrent, cut-in protection	HSR Compatibility	Direct plug-in to 24V wind input on HSR
Internal Wiring	3-core silicone 1.5mm <sup>2</sup> pre-installed in poles	Parallel Operation	Multiple units can daisy-chain to HSR
Connectors	Blind-mate 3-pin IP65 + XT60 or SP21 tail to case	Operating Temperature	-20°C to +55°C
Startup Wind Speed	~2.5 m/s	Storage Temperature	-30°C to +70°C
Rated Wind Speed	10 m/s	IP Rating	IP65 minimum (turbine, connectors, MPPT)
Cut-Out Speed	~14-15 m/s (controller dependent)	Altitude	Up to 3,500m above sea level
Max Survival Speed	Up to 40 m/s	Noise Level	<40 dB at 10m
Typical Night Output	0.3 - 0.9 kWh per night (wind dependent)	Expected Service Life	10+ years with standard maintenance
Blade Length	900 mm (each, pre-assembled)	MTBF (Electronics)	>50,000 hours (MPPT + rectifier)
Rotor Diameter	1.9 m tip-to-tip	Shock Resistance	10g, IEC 60068-2-27
Blade Material	Fibre-reinforced composite (black)	Vibration Tolerance	IEC 60068-2-6, 10-500 Hz
Hub Mount	O70 mm bolt circle, steel/alloy	Certifications	CE, UKCA, EMC, LVD, RoHS, REACH
Generator Housing	Cast alloy with sealed bearings	Patent	Pending: GB2509422.0
Pole Section Length	750 mm		

## PRIMARY USE CASES

<p><b>Military &amp; Defence</b></p> <p>Continuous wind charging for HSR at FOBs, OP positions, patrol bases, and vehicle hides.</p>	<p><b>Construction &amp; Civil Engineering</b></p> <p>Overnight and low-light energy harvesting to recharge HSR units on remote construction sites.</p>	<p><b>Humanitarian &amp; Emergency Response</b></p> <p>Reliable wind power in open terrain for field comms, medical, and logistics operations.</p>
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