

# Dragon Q Energy

## Executive Summary



### Mission

Providing direct-burial off-grid energy systems designed to support SOF areas of interest by ensuring safe, uninterrupted power and internet connection in remote and hostile environments.

### Problem

Current micro-grid technology faces significant challenges when deployed in remote off-grid environments, where extreme conditions such as severe weather, intense heat, and isolation from infrastructure often lead to frequent system failures, diminished operational efficiency, and increased maintenance demands, posing heightened risks to the warfighter. Additionally, the logistical complexities of transporting, installing, and maintaining these systems in remote locations calls for specialized transportation and skilled personnel for setup, monitoring, and management, which, combined with the environmental challenges, hinder the military's ability to ensure a reliable and sustainable energy and internet supply during critical operations, ultimately impacting mission success.

### Solution: The PowerPole

Dragon Q Energy is developing a troop deployable all-in-one off-grid power generation, storage, distribution and monitoring system through our patent-pending The PowerPole; a system designed to prevent explosion and deflagration, while employing multiple ways to control and mitigate thermal runaway in order to safely and efficiently meet the energy needs of military operations in remote and challenging environments.

The PowerPole can be easily transported by helicopter, airplane, or in a Hummer pickup in a single crate and is fully scalable from 4-8 kWh. The units can be configured with 1000W and 2000W inverters along with solar arrays ranging from 115W to 920W to meet the diverse needs mission at hand. The battery technology itself is versatile, with applications ranging from ship and airborne applications to multi-megawatt systems for stationary use, such as military bases and datacenters.

By deploying our batteries just below the surface, we strategically leverage geothermal cooling to maintain optimal performance and extend operational life, even when ambient temperatures exceed 120°F. This approach not only enhances thermal management but also provides a tactical advantage by reducing the units' signature, concealing them from satellite surveillance and thermal imaging systems. Furthermore, the PowerPole employs a pressurized argon, oxygen-free, environment to significantly reduce the risk of cell fires, explosion and progression of battery pack fires, ensuring safety for the warfighter. Units can be outfitted with a satellite internet connection or can be integrated into existing 5G networks to enable remote monitoring and real-time data transmission, ensuring reliable connectivity on the battlefield.



### Applications

- Drone Hive Charging
- Small Troop Encampments
- Device Charging
- Remote sensing & Detection
- Lockheed Martin 5G.Mil
- Satellite Connectivity
- Port Electrification

# PowerPole

## Specifications & Configurations



### Configurations

Battery	Solar Array	DC-AC* Inverter (Cont/Peak)	DC Power (Main)	DC Power (Aux)	USB/USB-C (Aux)	Expandalbe Solar
Li-ion 3.75 kWh 24V	460W	200W/400W	24V/25A	12V/15A	5V/10A	Yes
Li-ion 3.75 kWh 24V	690W	300W/700W	24V/25A	12V/ 15A	5V/10A	Yes
Li-ion 3.75 kWh 24V	920W	400W/900W	24V/ 25A	12V/ 15A	5V/10A	Yes
Li-Ion 7.5 kWh 48v	460W	400W/900W	48V/60A	12V/30A	5V/10A	Yes
Li-Ion 7.5 kWh 48v	920W	650W/1500W	48V/60A	12V/30A	5V/10A	Yes
Li-Ion 7.5 kWh 48v	920W	1000W/2200W	48V/60A	12V/30A	5V/10A	Yes

\*120/230VAC 50/60Hz

### Environmental Information- Direct Burial

Pack Operating Temperature (Max Permissible)	-20°C to 55°C (-4°F to 131°F) Discharge 0°C to 45°C (32°F to 113°F) Charge
Pack Operating Temperature (Max Cycle Life)	0°C to 30°C (32°F to 86°F) Charge/Discharge
<b>Recommended Temperature (Air)</b>	<b>-73°C to 76°C (-100°F to 170°F)</b>
Recommended Temperature (Soil)	0°C to 37°C ( 32°F to 100°F)
Humidity	Up to 100%, condensing, standing water
Storage Conditions	0°C to 30°C (32°F to 86°F) 0% to 100% Relative Humidity, condensing State of Charge (SoC): 20% - 30% (Initial)
Maximum Elevation	18,288 M(60,000 ft)* Max Civil Aviation Altitude (Space, lunar and mars specs available)
Environment	Underground, (Indoor & outdoor cooled)
Pack Enclosure Type	C1D2/ATEX (Anticipated)
Ingress Rating	IP68 (Pack and BMS Enclosure)*
Wet Location Rating	Yes

### Safety Specifications

Pack Thermal Runaway (TR) Mitigation	Positive Argon pressure keeps TR in cell casing. Hermetic environment starves initial fire of oxygen*
Pack TR Propagation Prevention	Pressurized Argon extinguish flames from ruptures cells*
Primary TR Control (Retention)	Pack can retain smoke, gases, chemicals of cell TR, while venting the pressures to prevent pack explosion and deflagration*
Secondary TR Control (Retention)	Pack can retain smoke, gases, chemicals of 2nd cell runway, while venting the pressures to prevent pack explosion and deflagration*
Tertiary TR Control (Release)	Pack can release smoke, gases, chemicals of cell TR overboard through a port and customer conduit, to prevent container explosion and deflagration*

\*Q1 2025

### Installation



Dig



Insert



Bury



Power