

BEACON Technology

Battery Enabled Autonomous Cellular Off-grid Node



CAL POLY
5G Innovation Lab



DRAGON Q ENERGY



The BEACON delivers off-grid, carrier-grade wireless connectivity powered entirely by renewable energy stored in Dragon Q Energy's battery.

The BEACON infrastructure framework represents a paradigm shift in telecom deployment methodology, enabling rapid establishment of carrier-grade neutral host cellular networks without dependency on traditional power grids or fixed communication backhaul.

This integrated technological ecosystem combines renewable energy generation, high-density storage systems, and intelligent power management with multi-protocol communications to create autonomous connectivity nodes that can be deployed in virtually any geographical context.

Value Propositions:

- **Rapid Deployment:** Enables fast communication infrastructure setup in remote, rural, temporary, and disaster-stricken areas.
- **Cost & Time Efficiency:** Cuts infrastructure costs by up to 60% and reduces deployment time from months to days.
- **Reliable Connectivity:** Provides carrier-grade service with emergency support, independent of traditional infrastructure.
- **Scalable & Sustainable:** Features modular expansion, intelligent optimization, and eco-friendly design with renewable energy integration.

Uses:

- Oil & Gas Operations
- Military & Defense Communications
- Disaster Recovery & Emergency Response
- Border Security & Surveillance
- Temporary Events & Pop-Up Networks

Installation Video:



Technical Specifications



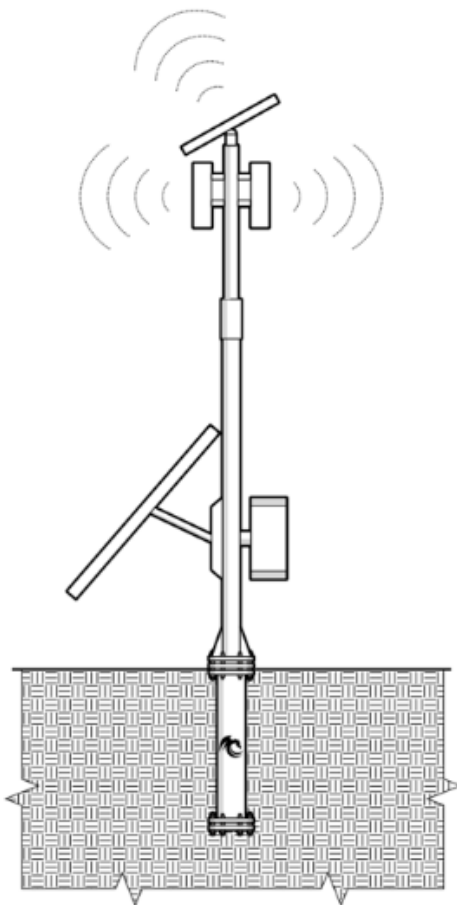
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Dragon Q Energy's Battery Infrastructure

Chemistry	Li-Ion (NMC)
DC Voltage - 14S (Nominal)	51.8VDC
Cell Voltage (Nominal)	3.7V
Cell Capacity	3.2Ah
Pack Capacity - 48P	154Ah
Total Energy	8000Wh
Useable Energy (Derated)	7500Wh
Overcurrent Protection Device	91A
Internal Battery DC Voltage	51.8V
Internal Battery Capacity, Amp/hours (Ah)	182Ah
Temperature Regulation	Passive Geothermal
System Round Trip efficiency	0.99
Battery Management System (BMS)	Active Balancing, UART/CAN Bus
Warranty	10 Years*
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



Physical Infrastructure

Telecom Pole	16 - 20 ft ,composite structure with integrated direct-burial battery foundation, reinforced mounting provisions for electronic enclosures, articulating solar array attachment points, and standardized communications equipment interfaces
Installation and Maintenance	Comprehensive deployment service package including site assessment, engineering validation, professional installation, 24/7 operational monitoring, preventative maintenance protocols, and extended warranty coverage

Communications Infrastructure

Satellite Radio Unit	Compact low-Earth orbit (LEO) satellite terminal featuring electronically-steered phased array antenna technology, integrated signal processing, and high-throughput modem delivering resilient backhaul connectivity for geographically-distributed network infrastructure
Edge Compute System	Distributed edge computing platform with integrated LTE/CBRS local breakout functionality, enabling on-premises traffic management, application hosting capabilities, AI-powered service optimization, and autonomous network operation without continuous backhaul connectivity
CBRS Cellular Radio Unit	BRS radio access node operating in the 3.5 GHz band (Band 48), featuring SAS-compliant operation, enhanced emergency services prioritization, multi-operator neutral host capabilities, and intelligent spectrum utilization algorithms