

AUTONOMOUS ENERGY SYSTEMS™

EnerGenius

Power Systems Technical Overview

Comprehensive technical documentation for Black Start power systems, deployment architectures, and integration pathways.

System Architecture

EnerGenius Autonomous Energy Systems combine generation, storage, and intelligent controls into a single resilience platform.

Black Start Capability

Internal DC Bus → Inverter Boot Logic → Load Detection → Auto-Start. Self-initiates from zero power without external input.

Core Components

- ✓ **LFP Battery Array** — 8,000+ cycle lithium iron phosphate cells
- ✓ **Pure Sine Inverter** — Medical-grade 120/240V AC output
- ✓ **SmartConnect PCB** — Wi-Fi/LTE monitoring & control
- ✓ **Thermal Management** — Active cooling, -20°C to 55°C range
- ✓ **MPPT Charge Controller** — Solar input optimization
- ✓ **Transfer Switch Interface** — Automatic grid switching

Nomad Series Specifications

Model	Continuous	Peak	Battery	Price
Nomad 20K	20,000W	40,000W	400 Ah	\$18,750
Nomad 40K	40,000W	80,000W	800 Ah	\$34,500
Nomad 80K	80,000W	160,000W	1,600 Ah	\$62,000

30% Federal Tax Credit

All systems qualify for Section 25D credit. Net costs: Nomad 20K \$13,125 | Nomad 40K \$24,150 | Nomad 80K \$43,400

8,000+

LIFE CYCLES

5 Year

WARRANTY

120/240V

AC OUTPUT

Runtime Scenarios

Nomad 20K Runtime Examples

Application	Load	Runtime
Essential Circuits	2-3 kW	60-80 hours
Office (partial)	8-10 kW	18-24 hours
Retail Storefront	12-15 kW	12-16 hours
Light Industrial	18-20 kW	8-10 hours

Load Prioritization

- ✓ **Priority 1:** Life safety, refrigeration, medical
 - ✓ **Priority 2:** Communications, security, POS
 - ✓ **Priority 3:** Lighting, HVAC, general outlets
 - ✓ **Priority 4:** Non-essential (auto-shed)
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Deployment Models

1. Standalone Backup

Grid-tied with automatic transfer. 20ms switchover for computers and sensitive equipment.

2. Solar Hybrid

Combines battery + solar. Prioritizes solar for daytime, stores excess for night.

3. Off-Grid Primary

Complete energy independence. Sized for 100% load with solar/generator charging.

4. Fleet/Multi-Site

Unified SmartConnect dashboard for monitoring multiple locations.

Integration Pathways

Electrical

- ✓ Transfer Switch: 100A-400A compatible
- ✓ Subpanel or whole-building connection
- ✓ Generator pairing for extended runtime

Solar

- ✓ Direct DC coupling via MPPT
- ✓ AC coupling with existing solar
- ✓ Micro-inverter compatible

Building Management

- ✓ Modbus TCP/RTU for BMS integration
- ✓ REST API via SmartConnect
- ✓ SNMP for IT infrastructure

Next Steps

Request a System Assessment

15-minute consultation covering:

- ✓ Critical load requirements
- ✓ Runtime and autonomy targets
- ✓ Integration with existing infrastructure
- ✓ Budget and tax credit guidance

Contact

Website: energenius.technology

Email: assessments@energenius.technology

Phone: 1-800-ENERGENIUS