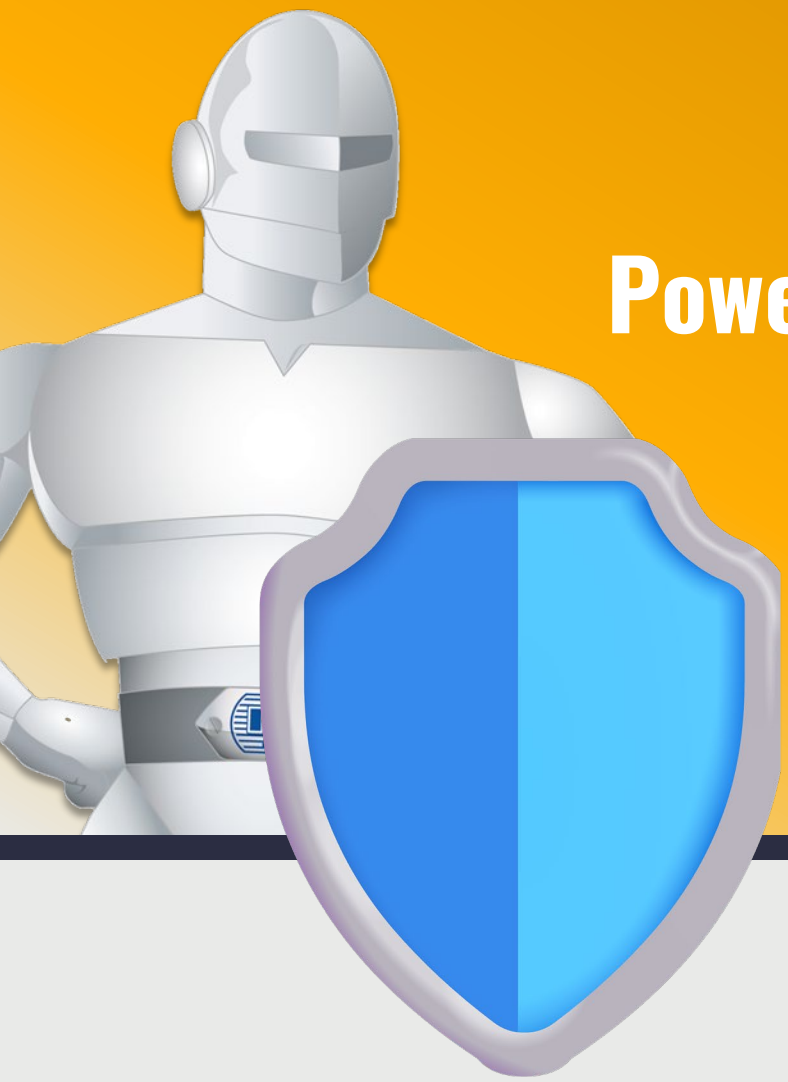

MINUTEMAN®
POWER TECHNOLOGIES

Powering AI Technology at the Edge:

Reliable Power for Computing & Security

INTRODUCTION

AI technology and edge computing are revolutionizing security and real-time analytics. From smart surveillance systems to edge-based inference servers, these deployments demand reliable, secure, and remotely manageable power infrastructure. This white paper outlines how to develop and deliver a robust power protection strategy across low- and high-density workloads, with accessories that enhance reliability, manageability, and scalability.

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The Challenge: Edge AI & Security Power Demands

Edge AI deployments face unique constraints:

- **Critical uptime:** AI-driven security systems must operate continuously without interruption.
- **Varied load profiles:** From small PoE camera networks to dense GPU-based servers.
- **Space limitations:** Many sites have restricted footprints for hardware.
- **Remote oversight:** Often unmanned, requiring remote monitoring and control.

A tailored power strategy is essential to meet these challenges.

How Backup Power Works

- UPS Systems instantly supply power during outages
- Battery runtimes matched to system requirements
- Surge protection shields hardware from voltage spikes
- SNMP-enabled UPS units allow remote monitoring & diagnostics

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Minuteman's Power Solutions for AI Technology:

Low-Density Loads

Encompass® RTXL & Endurance® Lithium

Ideal for: *Edge gateways, small switches/routers, PoE camera clusters, and access control servers.*

- ENCOMPASS® RTXL: Compact rack/tower form factor with extended runtime options.

- Endurance® Lithium: Lightweight, long-life lithium batteries for reduced maintenance and longer service life.

Key Benefits: Space-efficient design, high efficiency, and scalable runtime.

High-Density Loads

Endeavor® 5–10KVA

Ideal for: *GPU inference nodes, edge micro data centers, and high-performance computing.*

- ENDEAVOR® 5-10KVA: Generator-compatible, versatile, and ensures maximum uptime.

Key Benefits: Clean, conditioned power for sensitive AI workloads; Flexible scalability with external battery modules; Robust protection against surges, brownouts, and transients.

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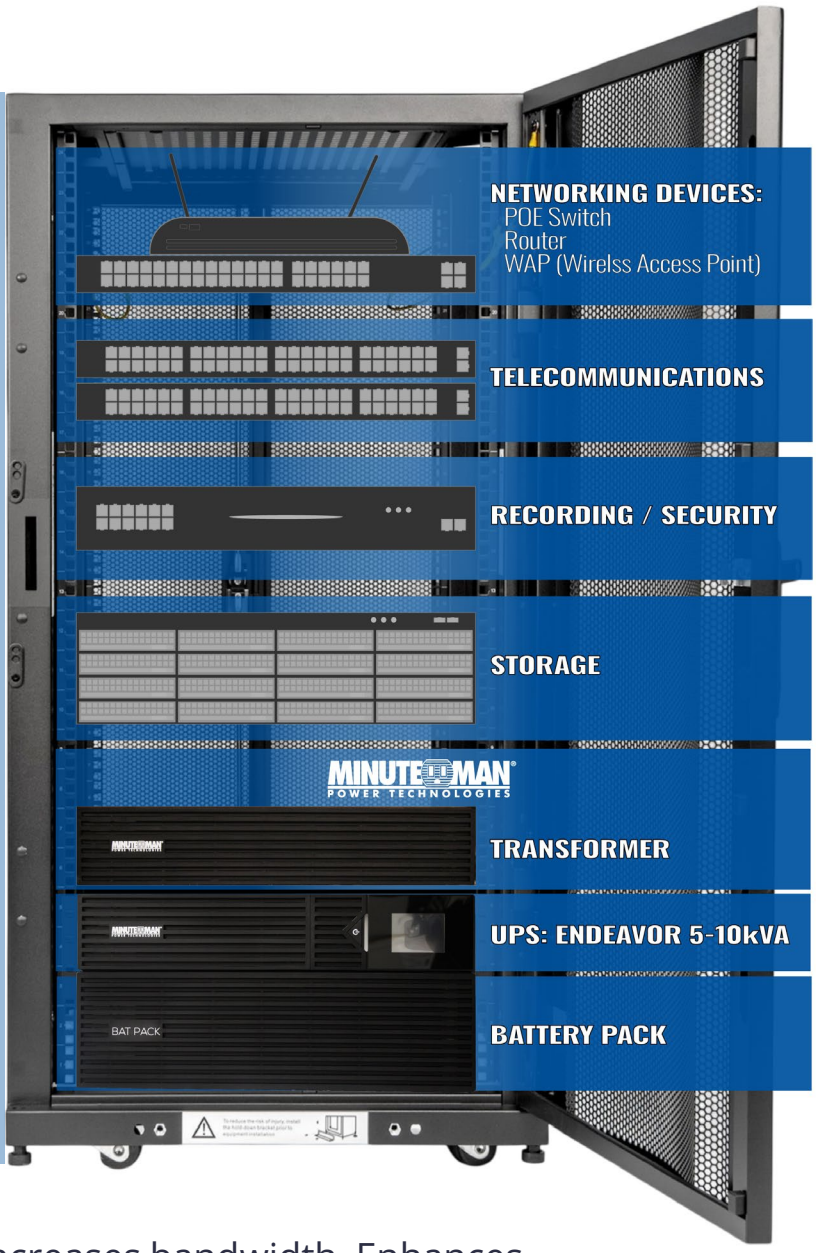
IT-Ready Deployments — Power Cabinets

Ideal for: *Fully integrated and secure deployments combining servers, networking, and power in one enclosure.*

- ***Ready for Immediate Deployment:*** *Shipped fully assembled, the Minuteman Power Cabinet enables swift deployment and equipment mounting, saving valuable time and effort.*
- ***Enhanced Security Measures:*** *Doors and side panels of the Minuteman Power Cabinet lock securely, providing an additional layer of protection against potential damage, tampering, or theft.*



Key Benefits: Improves latency issues, Increases bandwidth, Enhances connection stability, Ability to handle high-density loads, Essential part of critical infrastructure, and Unbeatable on-premise efficiency

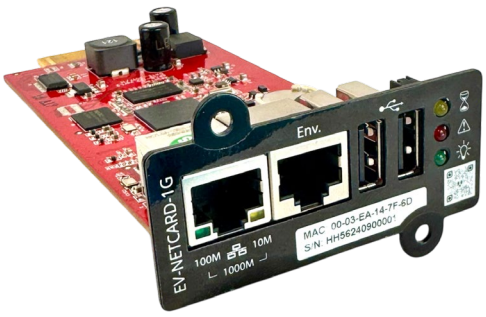
Accessories for a Complete Solution

To enhance the core UPS and cabinet systems:

- **Power Distribution Units (PDUs):** Reliable branch power delivery with surge protection.

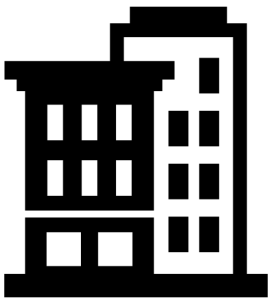
- **Remote Power Management PDUs (RPM PDUs):** Outlet-level monitoring and control for remote reboot and energy management.

- **Networking Management:** SNMP cards and web-based interfaces for UPS and PDU monitoring, alerting, and automation.

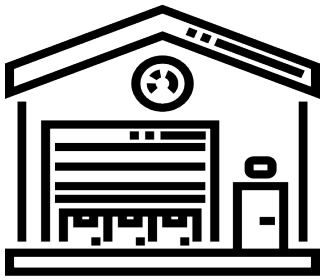


Deployment Scenarios

1. ***Small Retail Security Deployment***
   - ***Equipment:*** *PoE camera network, small switch, security NVR.*
   - ***Solution:*** *Encompass® RTXL or Endurance® Lithium with optional PDU, RPM, or network management card.*
   - ***Outcome:*** *Continuous operation during outages with remote reboot capability.*



2. ***Branch Office Edge Compute***
   - ***Equipment:*** *Security appliance, firewall, local inference server.*
   - ***Solution:*** *Encompass® RTXL with external batteries and network card.*
   - ***Outcome:*** *Extended runtime and simplified maintenance.*



3. ***High-Density Edge AI Cluster***
   - ***Equipment:*** *GPU-based inference servers, redundant networking.*
   - ***Solution:*** *Endeavor® 10KVA, Power Cabinet, PDUs, RPM PDUs, and SNMP management.*
   - ***Outcome:*** *Mission-critical uptime, full remote management, and scalable power.*

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Best Practices for Edge AI Power Infrastructure

- ***Right-size UPS capacity*** *based on measured load and growth projections.*
- ***Consider lithium battery technology*** *for reduced maintenance and total cost of ownership.*
- ***Integrate networked management*** *for proactive monitoring and control.*
- ***Deploy additional accessories*** *to enhance uptime and serviceability.*

Conclusion

Minuteman Power Technologies offers a comprehensive and secure power ecosystem for AI-driven edge computing and security deployments. From the compact efficiency of Encompass® RTXL and Endurance® Lithium to the robust capacity of Endeavor® 5–10KVA and the turnkey integration of Power Cabinets—backed by PDUs, RPM PDUs, and networked management —these solutions ensure uptime, protect equipment, and simplify remote operations.

Contact us to help conduct an assessment to align power solutions with your edge AI workload requirements.

📚 Resources & Tools

🧮 SizeMyUPS.com: Choose the right UPS by inputting device specs