



5MW Turnkey AI Factory

Engineered for High-Density Workloads and Repeatable Scale.

Compu Dynamics Modular (CDM) delivers turnkey modular infrastructure for AI data centers, built around application workloads. From high-density IT modules to power and cooling modules to campus-scale AI factory deployments, CDM brings **design, engineering, manufacturing, integration, deployment, and lifecycle support** together under one roof. The **5MW Turnkey AI Factory** is designed and built in the USA specifically for high-density AI training, inference, and HPC workloads. This platform delivers a vendor-neutral, factory-built, and field-assembled architecture for faster, more predictable AI capacity.

Key Platform Features:

- **AI-Optimized:** Purpose-built high-density IT modules engineered for AI training, inference, HPC, and advanced GPU workloads.
- **Hybrid Cooling:** Chilled-water AHUs combined with rack-mounted or row-based CDUs for liquid cooling.
- **Scalable Capacity:** Repeatable 5MW blocks that can seamlessly scale to 10MW, 15MW, or 50MW+ campus deployments.
- **Open OEM Integration:** Vendor-neutral architecture supporting leading chip, IT, power, cooling, and infrastructure OEMs.
- **Certified and Rugged:** UL 2755 compliant modular data center design utilizing NEMA 3R components for extreme environmental and structural resilience.

Designed for a Repeatable AI Campus.

CDM's Turnkey Modular AI Factory is built around a repeatable 5MW deployment block that can operate independently or scale into larger campus configurations. Each block brings IT, power, cooling, and network infrastructure together as one unified system, designed to connect seamlessly into the site utility backbone. For larger AI deployments, this platform creates a modular path from the first operational 5MW block to 50MW+ capacity without starting from scratch each time.



703-796-6070 | info@cd-modular.com

Product Specifications and Architecture

The 5MW Turnkey AI Factory is the pinnacle of modular hyperscale deployment. Four 1.25MW IT modules physically connect to form a seamless data hall, powered by a hyper-resilient electrical architecture. This configuration is designed around NVIDIA NVL72 GB200/300 class GPU racks and network infrastructure, while maintaining the adaptability for future chip generations requiring DC power or 100% liquid cooling.

SPECIFICATION	PARAMETER
Nominal IT Load	5MW scalable up to 6MW
Number of Server Racks	Up to 64
Rack Type	All current IT racks and vendors
IT and Power Modules	4 IT modules + 4 power modules
Dimension: L xW x H (w/o cooling module)	55' (L) x 46' (W) x 12.25' (H) (applies to both IT and Power modules)
Max IT Module Weight	~240,000 lbs (without IT)
Max Power Module Weight	~240,000 lbs
Power Architecture	4x 2MW Power Modules (4-to-make-3)
Input Power Voltage	480V
Voltage to Rack	480V/277V or 415V
Cooling Technology	Hybrid (Chilled Water AHU + Liquid). Separate isolation valves for concurrent maintainability

Facility Controls & Environmental Resilience

Environmental Control System (ECS): Centralized management provides integrated telemetry for monitoring power, cooling, setpoints, alerts, and alarms.

Fire Protection: VESDA smoke detection integrated throughout with engineered options for NOVEC 1230 or pre-action sprinklers.

Leak Detection: Dual-zone leak detection tape monitors CDU boundaries.

Fluid Drainage: Internal pipework safely routes condensate water and maintenance fluids to the module exterior.

Logistics & Rigging: Engineered with an 8-point bottom straight lift rigging design for secure heavy-haul and crane placement.

End-to-End Turnkey Deployment Partnership.

An efficient AI compute environment depends on a robust infrastructure backbone. CDM serves as your end-to-end partner, bringing the entire modular AI factory together through initial design and factory integration to comprehensive site preparation and utility interconnection, including design and permitting, crane and rigging, civil and security infrastructure, as well as the complete mechanical and electrical backbone installation.

Ready to accelerate your AI capacity with a platform built for scale and agility?
Contact Compu Dynamics Modular today to design and deploy your modular AI campus.



Get in touch: **703-796-6070** | info@cd-modular.com
For full solutions details, visit <https://cd-modular.com>

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