

General introduction

In the AI era, speed and flexibility have become the decisive factors for data center infrastructure. To address this, we officially launch this revolutionary turnkey solution—specifically designed for 7.5MW, 15MW and larger data centers—aimed at fundamentally transforming traditional deployment models.

This solution significantly streamlines the entire process from construction to operation, eliminating the complexity of managing multiple vendors while coordinating all aspects of deployment. By integrating all products in a factory-prefabricated manner, it enables rapid deployment without compromising scalability or future adaptability. The approach not only simplifies transportation and installation but also substantially reduces on-site labor requirements and associated risks. As a result, it enhances system reliability, drastically shortens on-site project timelines, and, most importantly, ensures controllable safety and schedule adherence.

For AI computing clusters, this design is tailored for AI factories based on NVIDIA GB200 NVL72 and GB300 NVL72 platforms. The data center features a modular architecture capable of supporting up to two AI IT PODs. Each module accommodates 48 racks of NVIDIA accelerated computing systems, and with liquid-to-liquid CDUs and adiabatic-assisted fluid coolers. The solution supports flexible scaling and can also be deployed as a single AI IT POD with supporting infrastructure, providing an optimal configuration for varying stages of AI computational demands.

Power Supply Solution

The medium-voltage system in this solution employs a 2N configuration, with 2 MV Sync Power Modules serving as MV power A and B. The low-voltage distribution for IT loads utilizes a 4 to 3 configuration, while the low-voltage distribution for mechanical loads is based on a 2N configuration. Considering the future application of SST transformers, this project adopts a medium-voltage diesel generator solution to better adapt to the evolving electrical supply configuration. The generators will be connected to both ends of the medium-voltage busbars for paralleled operation, thereby enhancing system reliability.

Cooling Solution

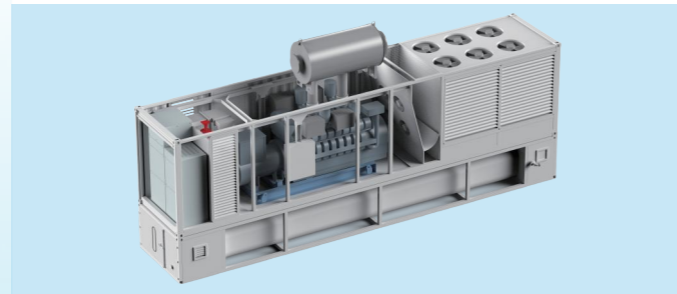
The cooling system in this solution employs a N+1 configuration, with a capacity of 1000RT chiller for each cooling container. Air cooling and liquid cooling source from the same cooling plant. The primary water is chilled water, whose supply temperature is about 24°C. The RDHx application can reduce the footprint and improve the cooling efficiency. And the CDU redundancy is 1+1 for each two IT containers. The capacity of the CDU is about 1.2 MW. Additionally, water tanks can be integrated to provide thermal backup. Specially, the pipelines and fittings are integrated in one container, which is easy for cooling maintenance and avoid the water leakage.

MV Genset Module

It is capable of stable startup and operation under extreme ambient temperatures ranging from -40°C to +55°C (or higher). An integrated belly fuel tank can be optionally configured to provide up to 24 hours (or longer) of continuous operation without relying on external fuel storage. The enclosure is equipped with an integrated automatic gas fire suppression system. Exhaust emissions comply with local environmental standards for clean discharge. The generator set functions as an independent modular unit, supporting automatic paralleling capability. The noise level of the enclosed unit is under 85DB(A) at 1 meter. The exhaust duct insulation is wrapped with stainless steel.

The diesel generator set integrates the following equipment. Components are delivered pre-wired and factory inspected, making performance more predictable and minimizing risk.

- generator
- fuel tank
- belly fuel tank
- exhaust system
- engine cooling system
- Fire detection and suppression system
- Busbar and cable tray
- lighting



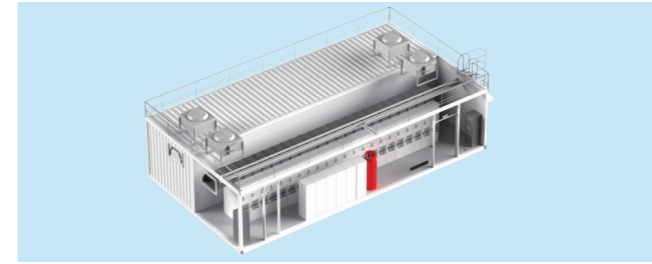
MV Sync Power Module

The MV Sync Power Module integrates key functions, including utility power intake, generator paralleling, automatic transfer between utility and generator power, and downstream power distribution.

The MV Sync Power Module can meet the reliability level of Uptime Tier 3 and above, comply with national fire protection and IT equipment room construction standards, and the interior of the container is sprayed with reflective heat insulation coating and waterproof treatment.

The MV Sync Power Module integrates the following equipment. Components are delivered pre-wired and factory inspected, making performance more predictable and minimizing risk.

- MV power cabinets
- DC panel cabinet
- Cooling
- Fire detection and suppression system
- ELV system
- Busbar and cable tray
- lighting

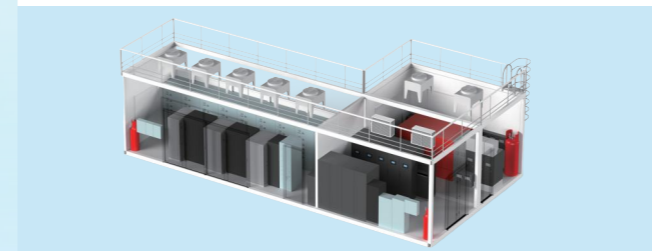


PTU

The PTU comprises three compartments: one for the transformer, one for the lithium battery, and one for the LV system. The physical segregation of lithium batteries from power distribution equipment is a fundamental safety measure, containing thermal runaway risks, preventing system interference, and facilitating efficient cooling and maintenance. The PTU can meet the reliability level of Uptime Tier 3 or above, and complies with the national fire protection and IT equipment room construction standards.

The LV system integrates the following equipment, and is tested in the factory, which greatly improves the assembly efficiency of on-site construction, makes its performance more predictable, and minimizes risks. Prefabricated enclosure that contains all the critical power infrastructure:

- UPS
- Batteries
- LV Switchboard (Includes SVG and APF)
- Cooling
- Fire detection and suppression system
- ELV system
- Busbar and cable tray
- lighting

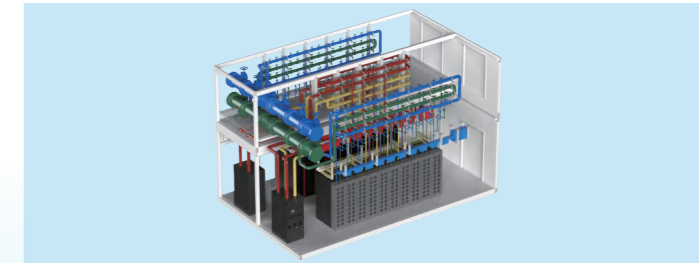


AI IT POD

AI IT POD provides container prefabricated data center data hall. It supports fast and flexible deployment, and can be expanded to multi-layered data center or a flatpack scenario to meet the needs of data centers. It can also support multi-layer stacking for large data centers, which is suitable for phased construction and land use scale. In terms of cooling solutions, it is also compatible with chilled water system, fluorine refrigeration system with magnetic levitation compressor, air-cooled DX system and liquid cooling system. The indoor cooling units

can be selected from fan wall units, room air conditioner, in-row air conditioning units, and cold plate liquid cooling system. In this case, the AI IT POD can be separated into two layers. The first layer container includes busway, piping, network cabling, RDHx and CDUs. The secondary layer is piping container, which including primary and secondary piping. It can effectively avoid the risk of water leakage. The IT container module can meet the reliability level of Uptime Tier 3 and above, and complies with the national fire protection and computer room construction standards. The main equipment integrated in the modules as shown below:

- IT racks and network racks
- Cooling
- Fire detection and suppression system
- ELV system
- Busbar and cable tray
- lighting

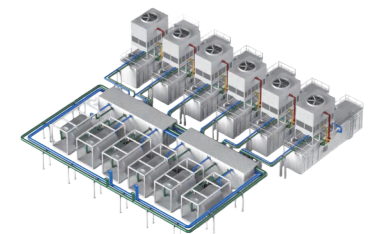


Cooling Module

Cooling module offers an extensive selection of dependable and high-performance cooling, including air-cooled, water-cooled, air-cooled free cooling, adiabatic, and evaporative chiller options. Free cooling solution can also be designed to support data centers in meeting the demands by considering the lower air temperature. In this case, the cooling system is 5+1 redundancy. The chiller module includes chiller, water pumps, sand filter, water treatment system, cable trays, fire protection, lighting, HVAC, as well as BA system and BMS system. All the above equipment and internal pipelines and valves are integrated and installed inside the module, and various tests are carried out in the factory, which can greatly reduce the difficulty of on-site operations and shorten the construction period. It is engineered to withstand extreme ambient temperatures of -40°C and 60°C, has an earthquake resistance level of 8 degrees, and supports the coastal C4 anti-corrosion level.

The main equipment integrated in the modules as shown below:

- Chillers
- Pumps
- Cooling towers
- Sand filters
- Fire detection and suppression system
- ELV system
- Cable tray
- lighting





Website QR Code

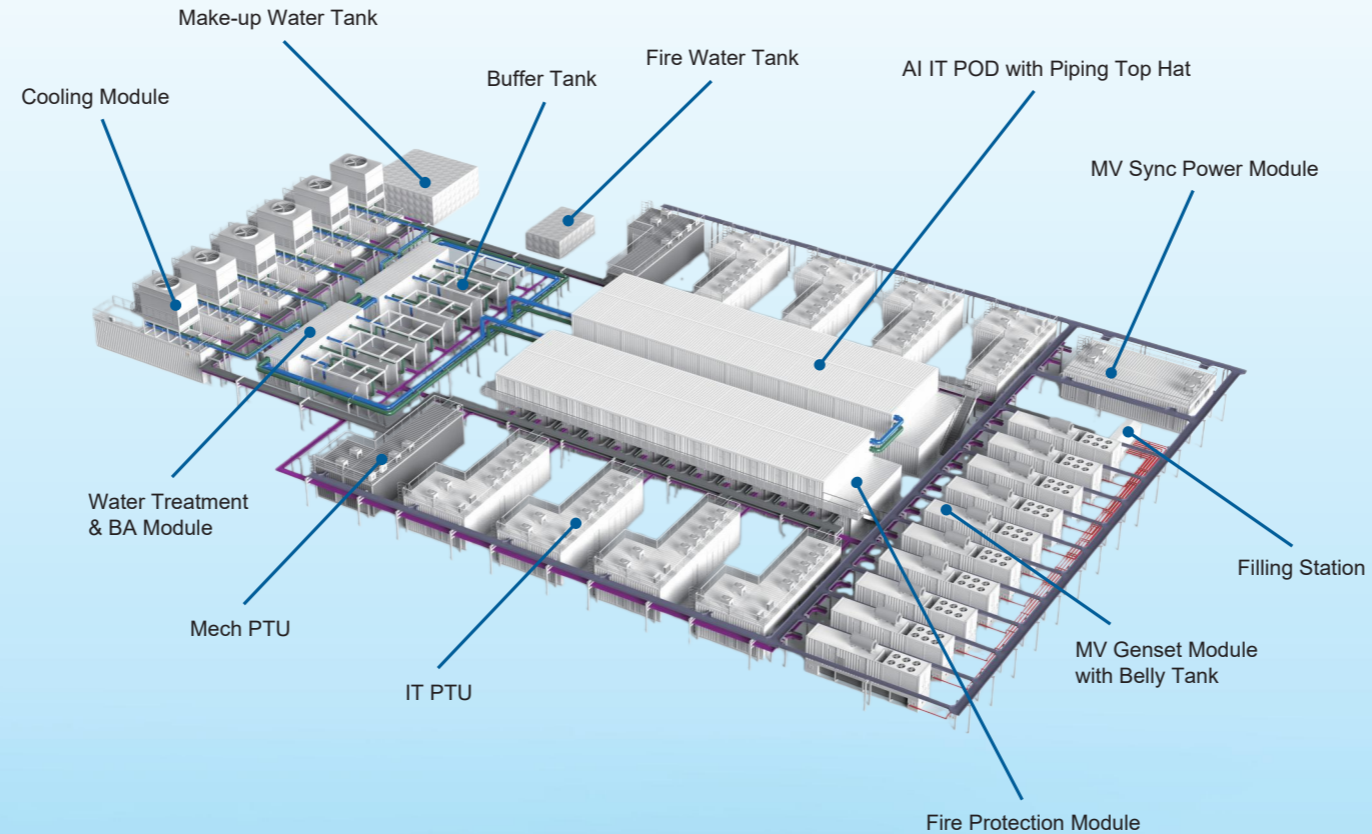


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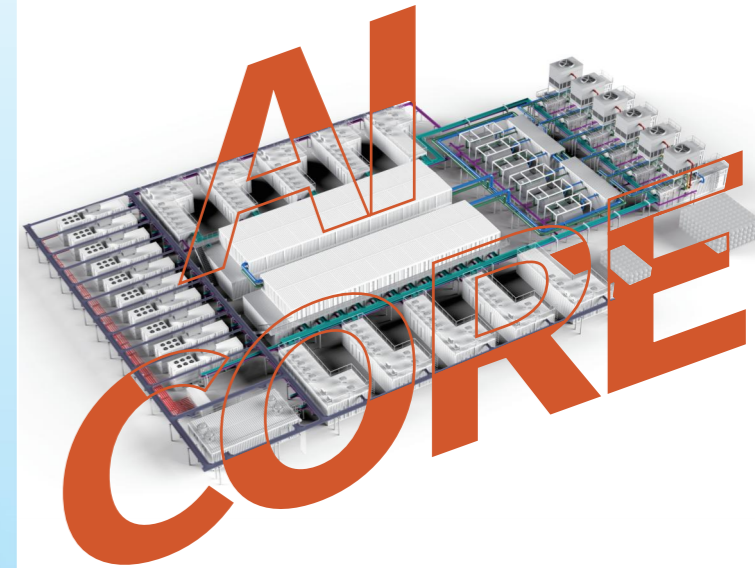
DATA CENTER MODULE



Data Center IT Capacity: 15MW (Minimum 7.5 MW)
Target Availability: Tier III
Total Racks: 240 (10 racks per container)
Rack Power Density: Networking racks up to 12 kW/rack
AI racks up to 132/142 kW/rack0

Design Highlights

- **Scalable Modular Architecture:** Supports flexible building sizes with customizable data center modules.
- **Accelerated Deployment:** Prefabricated solutions for rapid delivery.
- **Streamlined logistics:** simplified transportation and hassle-free installation
- **Optimized workforce needs:** minimized on-site labor for greater efficiency.



EPG AI Core

EPG's Pre-engineering and Prefabricated
Data Center Solution