Modular Data Center Advantage

Cupertino Electric, Inc. (CEI)’s Modular Division changes the economics of mission-critical data centers, giving businesses a simpler, faster and more cost-effective way to build and scale data center capacity.

THE NEXT GENERATION OF DATA CENTERS

CEI’s Modular Data Center

CEI can build and provide a full turnkey data center, designed and manufactured in-house, typically for “green field” projects. The Modular Data Center (MDC) is equipped with systems included in Tier II - Tier IV designs, such as:

- Redundant power
- Redundant cooling
- UPS
- PDUs
- BMS/EPMS
- Fire Protection
- Fire Alarm
- EPO
- Security
- Lightning Protection
- Generators

Each MDC is deployed in multiple module segments that assemble onsite in a matter of days to complete a full data center building with open interior space. Support spaces such as restrooms, conference rooms and offices are not included in the MDC, but can easily be incorporated into the overall project design in the form of a pre-manufactured metal building (PMB). The CEI MDC will be factory-commissioned to Level III and site commissioned to Level V.
Why Use a Modular Approach?

FLEXIBLE • RELIABLE • COST-EFFECTIVE • EFFICIENT • FAST

Total Flexibility
Customers can specify exactly what they require for their data management and operational needs. Requirements for redundancy, heating/cooling, accessibility and footprint can all be matched to customer needs. In effect, each module is a data center in its own right, built specifically to order for the client.

Faster Implementation
Thanks to the modular design and off-site build, a business can have their dedicated and fully customized data center up-and-running in 28 weeks, as opposed to 14 to 18 months for a traditional data center.

Quality
By removing site build activities and utilizing a manufacturing environment, a modular data center approach reaps all the benefits of a pre-tested, pre-designed product. Manufacturing in a controlled environment, utilizing ISO 9001 and proven manufacturing processes, ensures a consistent and high-quality product. In addition, all modules are fully tested and commissioned at the factory, prior to delivery, to guarantee that all systems work every time.

Cost-Effective
CEI Modular’s unique design results in the ability to scale a data center to match emerging business needs – a “just in time” approach. No longer do companies have to invest large amounts of capital upfront, only to underutilize their space, as their computing needs grow. In addition, due to efficient modular designs, clients can experience lower operating costs over time as well.

Energy Efficient
With dramatically increasing energy costs and power needs, energy efficiency has become a big concern for most companies. CEI Modular’s designs can deliver annual average PUEs in the 1.2-1.4 range, compared to the common results of traditional data centers of 2-3 PUE.
Customizing CEI’s MDC Solution

<table>
<thead>
<tr>
<th>Standard Product</th>
<th>600 kW</th>
<th>1.2 MW</th>
<th>1.8 MW</th>
<th>2.4 MW</th>
<th>3+ MW</th>
<th>Options</th>
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<td>Fully Enclosed Modular Building</td>
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<td>✓</td>
<td></td>
<td></td>
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<td>Exterior finishes</td>
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<tr>
<td>Redundant Mechanical Systems</td>
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<tr>
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<tr>
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<td>Wet or dry systems</td>
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<tr>
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<td></td>
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<td>Vesda</td>
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<td>Server Racks</td>
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CEI Modular MDC1200 Key Features

The CEI Modular MDC 1200 base model comes complete with:

- 1200 kW Critical Load
- (7) 930 Sq. Ft Steel-framed Modules
- (6500 Sq. Ft total)
- 240 Racks
- Modular Construction – not containers, a modular design configuration
- Modifications to redundancy, power, cooling method, footprint, air distribution and other key elements

CEI Modular MDC1200 Specifications

**Electrical**

- 1200 kW critical block redundant
- 100% Rated
- 6 kW / Rack – 185 W/Sq. Ft.
- (2) 1500 kW generators – 5000 gal. fuel storage
- (4) 600 AMP automatic static transfer switches
- (4) 750 kVA static UPS
- (20) 150 kVA power distribution units
- Branch circuit monitoring
- EPMS / BMS
- 6min VLRA at EOL UPS battery storage

**Mechanical**

- Uniform server inlet temperature control
- Optional server inlet relative humidity control
- Refrigeration, hybrid and non-refrigerant solutions available

- Close-coupled HVAC (cold/hot aisle containment complete air segregation for high efficiency)
- 100% airside or waterside economization capability
- Optional dynamic airflow/pressurization control
- Optional heat recovery supplementation for comfort heating

**Safety and Security**

- Pre-action fire protection
- Fire alarm system
- PTZ exterior/interior cameras
- Lightning protection
- Card readers (at all exterior doors)
- EPO (at exits)
- Factory-tested
- State-licensed modular program