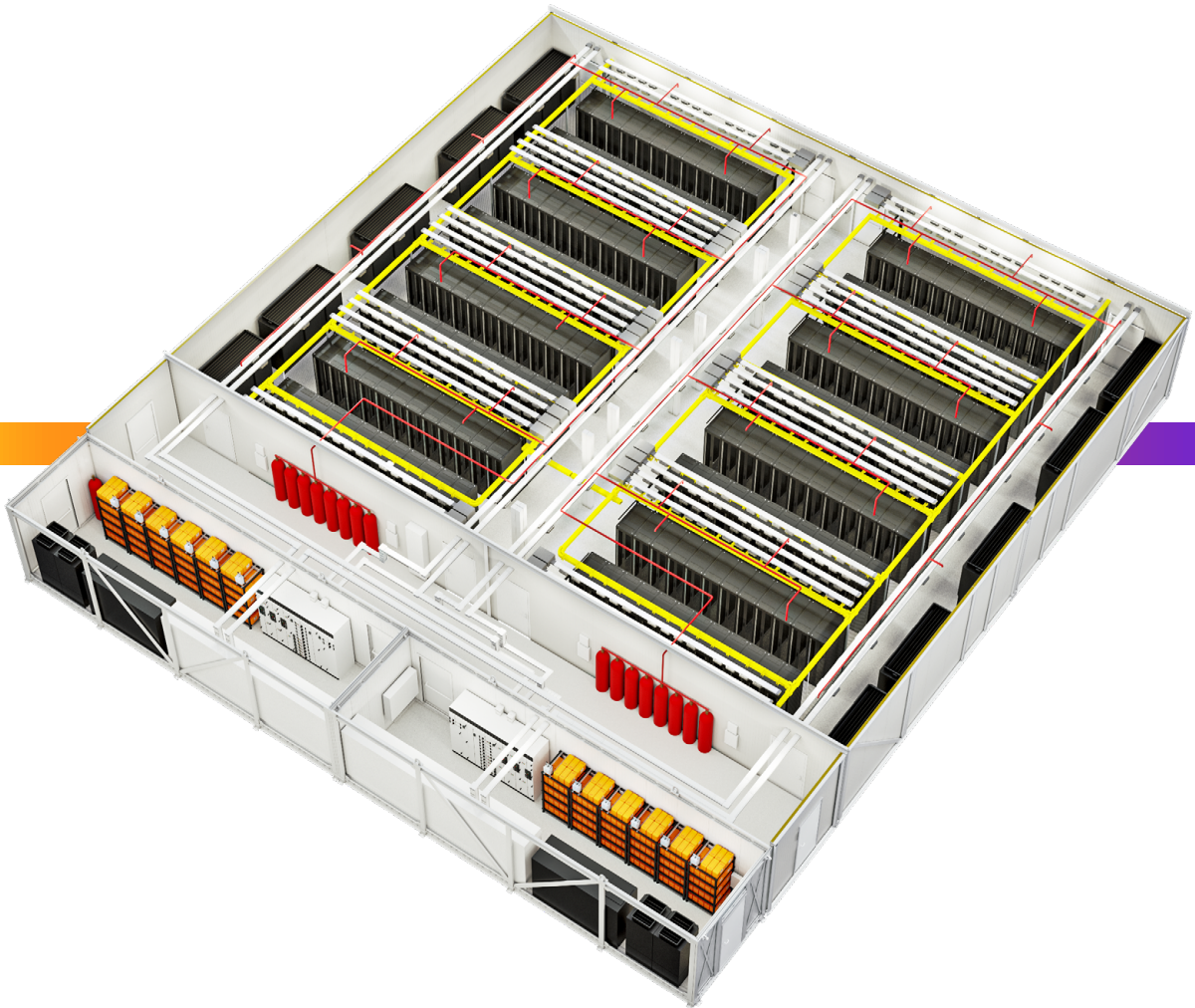


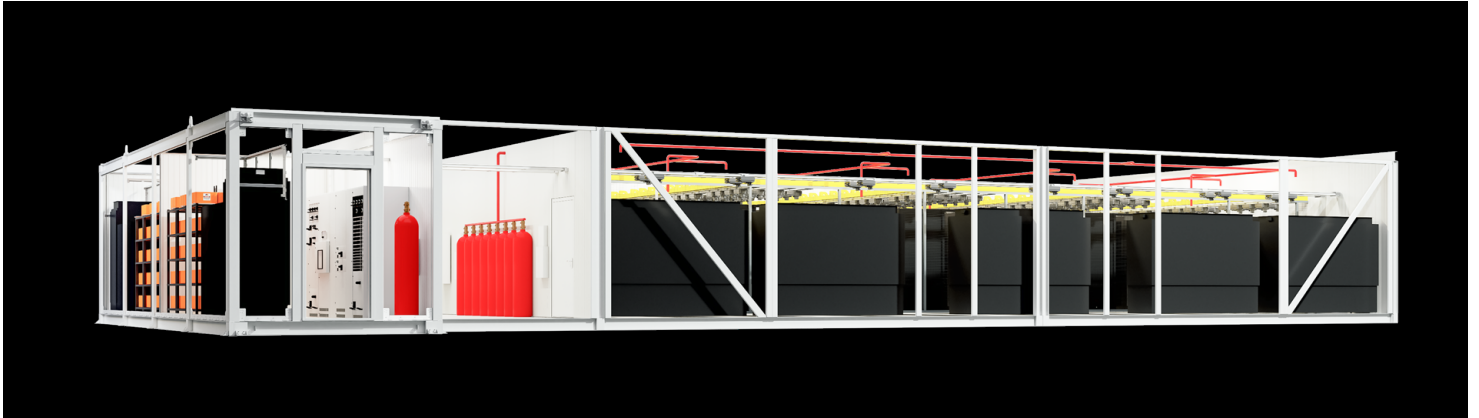


Vertiv™ MegaMod™

High-Quality Prefabricated Modular Data Center Solution for Diverse Use Cases



A Complete Flexible, Scalable Data Center Solution that Speeds Deployment



Vertiv™ MegaMod™ Provides a High-Quality Prefabricated Modular Data Center Solution that can be deployed in expandable units of 0.5 or 1 MW for IT Loads up to 2 MW or more.

Market dynamics are transforming data center development in real-time. Historically, facilities have typically been stick-built, requiring long lead times and heavy upfront capital investment. However, recent events and trends have caused investors and data center owners and operators to reconsider this approach.

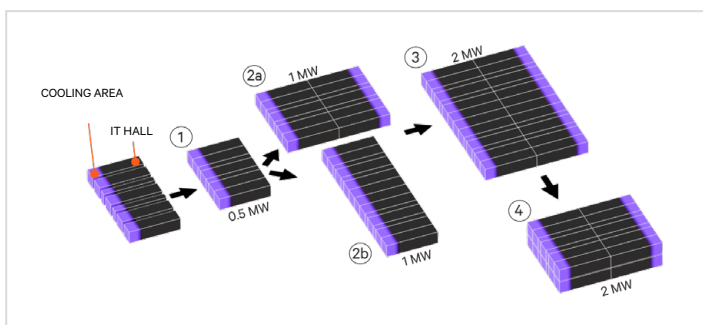
As demand for compute and digital services soars, data center owners and operators are in a prime position to capture this growth if they can accelerate the rollout of new capacity. The good news is there is a construction model that enables these stakeholders to do just that: prefabricated modular data centers (PFMDCs).

Instead of building white space and power rooms they don't need, data center owners and operators can simply buy new capacity in building blocks of 500 kW. This provides buyers with greater flexibility.

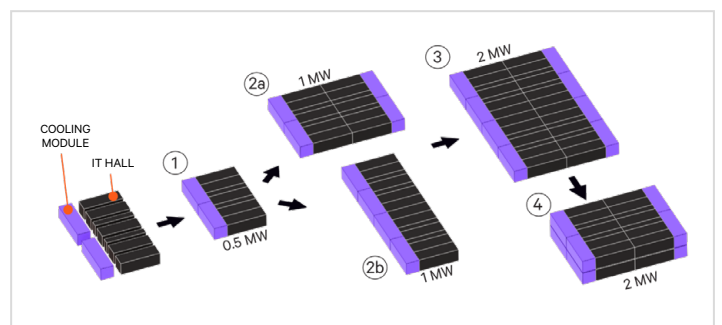
They can begin with 0.5 MW and grow up to end-day capacity in a single location or versatily deploy full IT Load plug-and-play capacity across multiple locations.

MegaMod™ enables application of all known cooling technologies and various data center infrastructure topologies.

Vertiv MegaMod options for Expandability and Stackability



Various building block layouts for MegaMod™

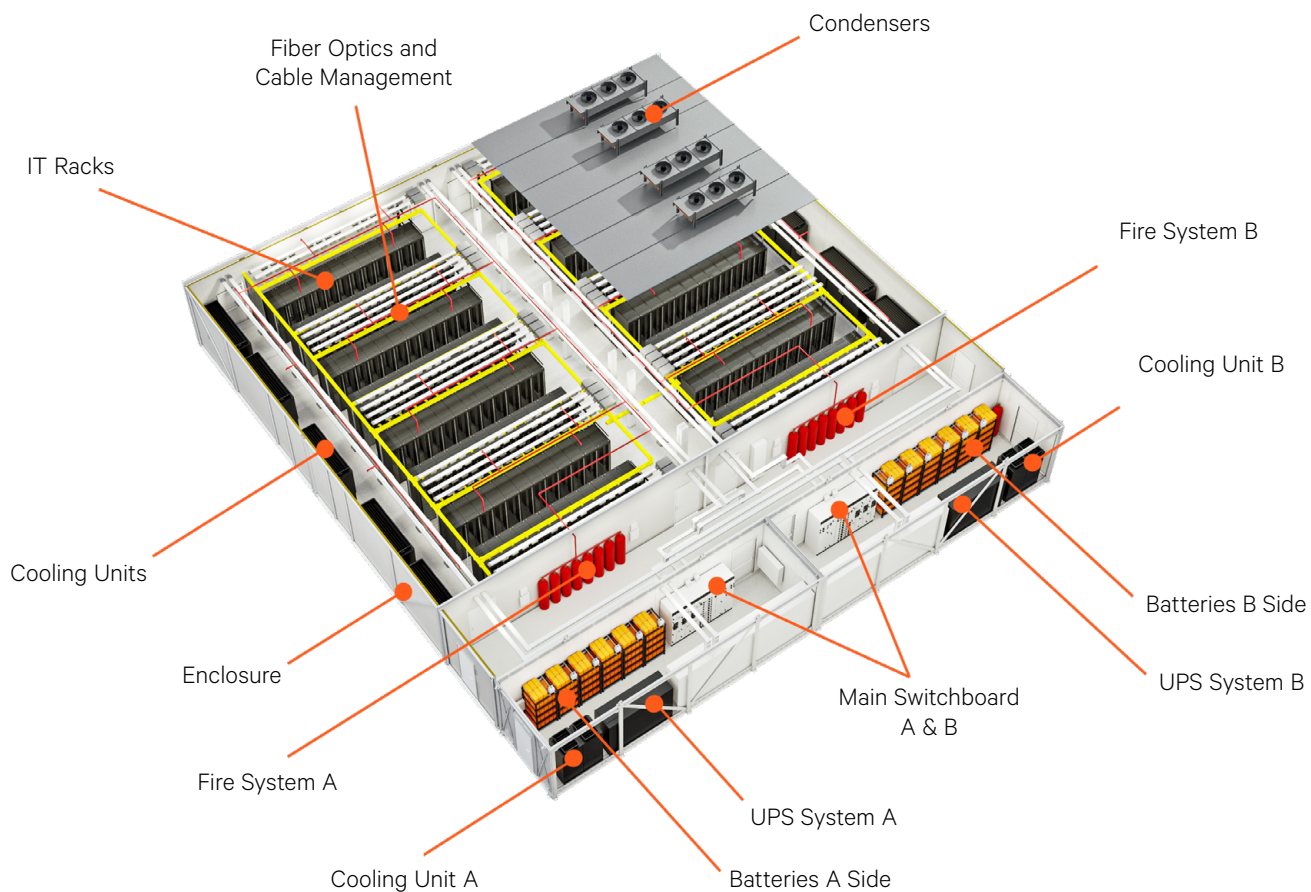


Various building block layouts for MegaMod™ Plus

MegaMod with its prefabricated, variable building blocks enables data center owners to create a data center according to their specific needs. The basic building block can further be multiplied in any of the three directions to create larger data centers.

In MegaMod, IT racks and cooling units are placed within a single module, to create a full IT Hall space. Compared to MegaMod, the MegaMod Plus offers additional racks and cooling capacity with a dedicated IT and Cooling Modules.

Component Overview of Vertiv™ MegaMod™



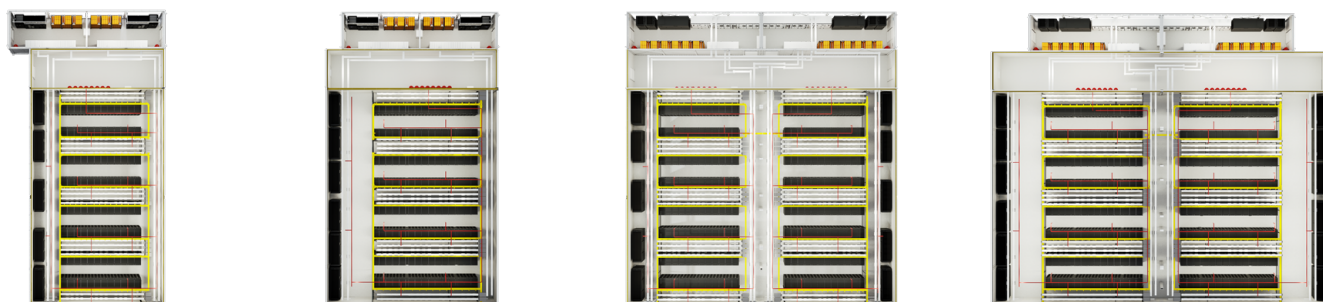
Cut-away view of Vertiv™ MegaMod™

MegaMod™ 0.5 MW

MegaMod™ Plus 0.5 MW

MegaMod™ 1 MW

MegaMod™ Plus 1 MW



Top view of Vertiv™ MegaMod™ Reference Designs

Vertiv™ MegaMod™ Makes IT Easy to Deploy New Capacity at Speed

MegaMod™ provides everything you need to get started with a fully equipped modular data center, from external power rooms, to cooling, racks, monitoring and fire protection. In addition, Vertiv also can provide end-to-end services for a worry-free startup and ongoing operations, including deployment, commissioning, ongoing maintenance, spare parts, and ongoing training.

MegaMod includes:

- **UPS power protection** – Rely on the monolithic, transformer-free Vertiv™ Liebert® EXL S1 UPS, which provides leading power per square foot and operating efficiency, robust electrical protection, intelligent paralleling that optimizes performance and Dynamic Grid Support for enhanced grid interactive capabilities.
- **Batteries** – Gain reliable battery backup with Valve-regulated lead acid (VRLA batteries), or choose lithium-ion as an upgrade, to gain longer lifespans, better performance in rugged conditions, and a lower total cost of ownership.
- **Floor-mounted Vertiv™ Liebert® PDX Air Conditioning** – Benefit from cooling that provides the industry's highest efficiency, protection, and capacity per footprint for smaller space. Other cooling type options on request.
- **Thermal containment** – Isolate hot containment, ensure aisle and cold containment, and maintain aisle airflows for optimum thermal performance.
- **Classic and cost-effective Vertiv™ racks** – Store all equipment securely and efficiently, while easily accessing equipment for servicing.
- **Vertiv™ rack power distribution units (rPDUs)** – Ensure reliable power distribution, with monitored and switched rPDUs.
- **Automatic Transfer switching functionality** – Easily navigate outages with automatic switching to secondary power sources.
- **Overhead infrastructure** – Contains electrical distribution, and fiber ducts, away from electronics.
- **Clean agent fire suppression and aspiration smoke detection** – Protect your assets in the event of a fire with fast-acting detection and suppression systems.
- **SCADA-based Building Monitoring System (BMS) with a SQL database** – Teams can use the BMS for real-time onsite or remote monitoring and visualization of critical infrastructure, with graphics, alarms, trending, user management, and database recording of sessions, keeping system performance high.

Vertiv uses well-defined, standardized processes to build MegaMod solutions and test them before they are shipped and deployed. As a result, buyers avoid the risk of sourcing and integrating equipment from different vendors, while gaining the peace-of-mind of using quality equipment that is backed by leading warranties and the best service network in the business.



How Vertiv™ MegaMod™ Helps Customers Work Towards Their Sustainability Goals

MegaMod™ provides several advantages over traditional data centers including:

- Modular construction can lower embodied carbon emissions throughout the material production phase when compared to an equal reinforced concrete structure.
- MegaMod uses steel which can be completely recycled.
- Vertiv uses electrical power to assemble MegaMod in factories, which is cleaner than the diesel power used by construction crews to build data centers onsite.
- MegaMod featured Vertiv™ Liebert® EXL S1 UPS provides Dynamic Grid Support capability that allows end users to support the integration of renewable energy sources.
- Streamlined logistics avoids additional vendor deliveries and contributes to lower overall carbon emissions than traditional builds.
- Optional advanced remote monitoring, which can reduce maintenance and repair truck rolls.

Digital growth is here to stay, and those EMEA companies that can move swiftly to meet market demand stand to drive revenues and profitability faster than their competitors.

MegaMod enables companies to rapidly deploy new power and compute capacity across the EMEA region with lower upfront costs, greater predictability, and less risk. In addition, they benefit from the exceptional performance of integrated Vertiv IT, power and cooling solutions and Vertiv's global service network.

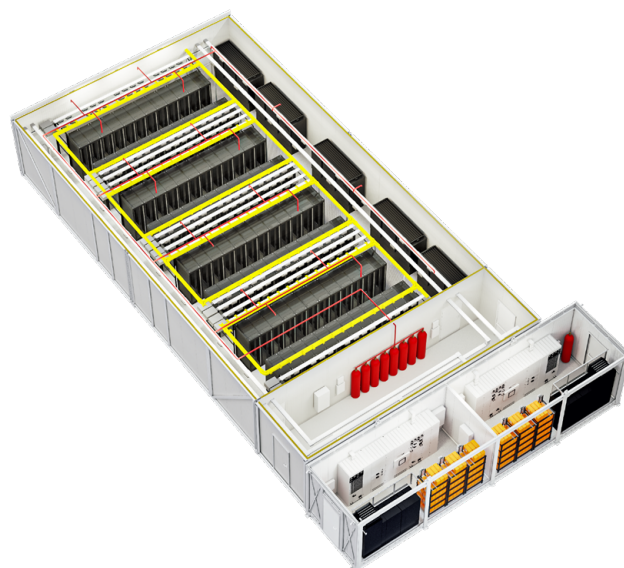
Use MegaMod to expand your core-to-edge data center network in EMEA.

[GET STARTED TODAY](#)

Vertiv™ BMS - EPMS solution

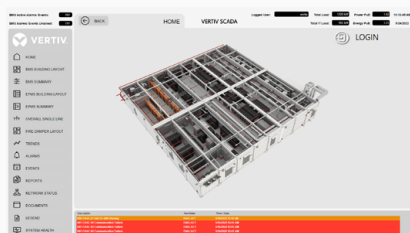
Vertiv's advanced 64-bit HMI/SCADA system with open-standard OPC UA, Modbus and BACnet connectivity enables operators, managers and IT to integrate real-time data from data center, energy, HVAC, critical systems and business information into a secure and unified web-based visualization dashboard. The system ensures the security of all critical data by providing high-availability redundancy so that mission-critical real-time data, historical data and alarm information is always available.

Advanced visualization on any device, anytime, anywhere with stunning 2D and 3D HMI and SCADA visualization that allows customers to view their entire system operations from their desktop or mobile device. Users can create scalable, vector-based XAML graphics that can be used as HTML5 web pages to be viewed by operators and clients on any WPF-compatible web browser.



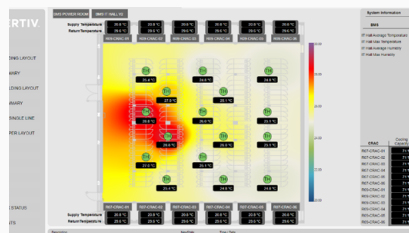
Cut-away view of Vertiv™ MegaMod™

Home Screen



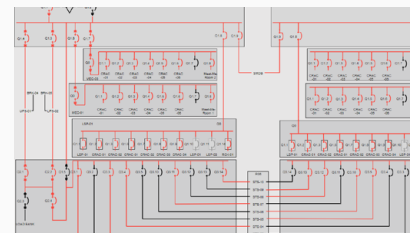
Displays the current status of the Data Center, total loads, PuEs, number of alarms and overview of last active alarms.

BMS Layout



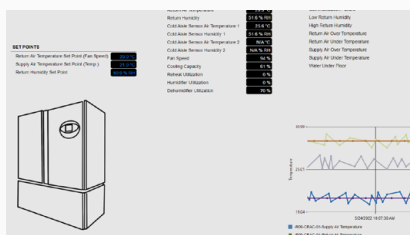
Displays status of the Data Hall with supply, return and aisle temperature, unit statuses and cooling load.

Single Line



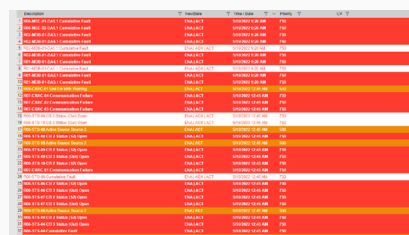
Displays status of every breaker in distribution path to the racks, with dynamic busbar coloring of live busbars.

Thermal Screen



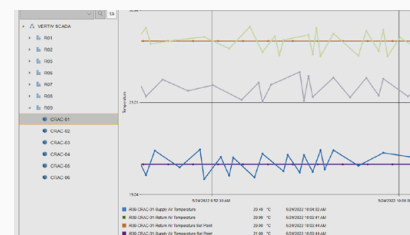
Displays the system status of the unit, current setpoints, basic readings, basic alarms and predefined 15 min, 1 hour or 1 day trend.

Alarm Screen



Displays current or historical alarms or warnings of equipment connected to system with filtering, sorting or exporting options.

Trend Screen



Displays trends of every data point integrated in the system, either by predefined charts or by creating customized datasets.

MegaMod™ Platform Design Feasibilities

MegaMod™ Reference Designs

		MegaMod™ 0.5 MW	MegaMod™ Plus 0.5 MW	MegaMod™ 1 MW	MegaMod™ Plus 1 MW
General					
Region	EMEA	EMEA			
Voltage/Frequency	400VAC, 50Hz	400VAC, 50Hz			
Ambient Operating Range	-30°C to +52°C	-30°C to +40°C			
External Dimensions					
Enclosure Height (m)	4 / 5 ⁽¹⁾	4			
Enclosure Length (m)	Depending on final layout	26.5			
Enclosure Width (m)	Depending on final layout	14	15.5	24	31
Stackability	Yes, as option	Not featured in Reference Design			
IT Hall					
IT Racks					
No. Of Racks : Width - 600 mm	up to 128 per 0.5 MW IT Hall block	96	120	192	240
No. Of Racks : Width - 800 mm	up to 96 per 0.5 MW IT Hall block	Not featured in Reference Design			
Rack Height	42U / 47U / 48U	42U			
Rack Depth	1100 mm / 1200 mm	1100 mm			
Rack Load	8 kN	8 kN			
Electrical					
Max IT Load ⁽²⁾	up to 2 MW	500 kW	500 kW	1000 kW	1000 kW
Rack Density	4 - 8 kW	5.2 kW	4.4 kW	5.2 kW	4.4 kW
Busbar System	A+B side	A+B side			
PDU	Two per rack	Two per rack			
PDU Capacity (max)	3x16A @ 230 / 400V - 3 phase	3x16A @ 230 / 400V - 3 phase			
PDU Type	Basic, Monitored (unit level) or Switched (unit level)	Monitored (unit level)			
Mechanical (HVAC)					
Air Conditioning Type	Perimeter cooling, direct expansion	Perimeter cooling, direct expansion			
Air Conditioning Redundancy	N+1	N+1			
Air Conditioning Units	Liebert PDX PI/PX82-120 + HCR59 - 99 or MCM/L 55-100 with Econophase	Liebert PDX PI120 + HCR88 condensers (2 condensers per unit)			
Ventilation type	Roof mounted Air Handling Unit, with humidifier, DX dehumidification	Roof mounted Air Handling Unit, 1000 m3/h, with humidifier, DX dehumidification			
Power Module					
Electrical					
Power module topology	N / 2N	2N within single module		N within single module / two modules	
Main Switch Board w/ UPS Bypass	Depending on final Power Module specification	3p1600A, TP&N+E, 400V/50HZ PSCC = 36kA @ 1sec FORM 4 Type 2; IP 31		3p3200A, TP&N+E, 400V/50HZ PSCC = 50kA @ 1sec FORM 4 Type 2; IP 31	
Automatic Transfer Switch	Breaker Based	Breaker Based			
UPS Model	EXL S1	EXL S1			
UPS Rating	600 / 1000 / 1200 kVA	600 kVA		1000 kVA	
Battery Backup Time	+5 min	5 min @ 500 kW EOL		5 min @ 1000 kW EOL	
Battery Type	VRLA / Li-ion (optional)	VRLA			
Mechanical (HVAC)					
Air Conditioning Type	Perimeter cooling, direct expansion	Perimeter cooling, direct expansion			
Air Conditioning Redundancy	N	N			
Air Conditioning Units	Liebert PDX	Liebert PDX PI041 + HCR59		2 x Liebert PDX PI041 + HCR59	

⁽¹⁾ Actual module height may vary due to roof mounted condensers. 5m height includes roof support beam installed on site.

⁽²⁾ Maximum IT load at dT=15°C for MegaMod and dT= 12°C for MegaMod Plus.

