

Technical Specification

Medium Voltage UPS

5MW to 50MW+, 4.16kV to 34.5kV



MV UPS Series connected power conditioning device

Objectives:

- Deliver conditioned and tightly regulated voltage to sensitive and mission-critical loads
 - Buffer rapid AI and industrial load transients, presenting a smooth and predictable power profile to the upstream grid or distributed generation sources
 - Support grid stability during utility disturbances by maintaining load connection and surpassing modern grid ride-through requirements, including ERCOT guidelines
 - Provide seamless bridge power during transitions between utility and distributed generation sources with zero transfer interruption
 - Utilize integrated BESS functionality for backup energy, load support, and extended ride-through operation when required
- Supply high fault-clearing current capability to support downstream fault clearing and maintain system continuity

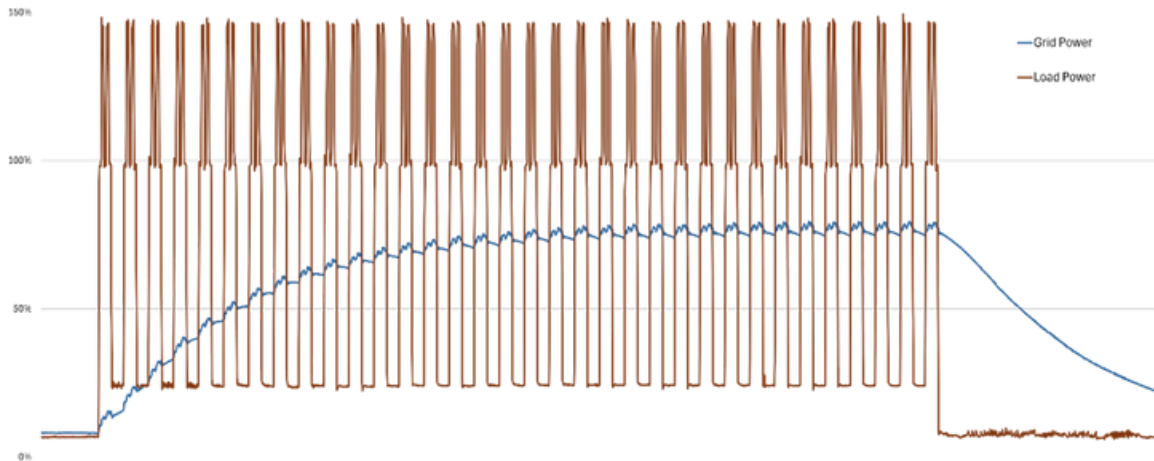
Technical highlights:

Efficiency	>98%
Fault clearing capability	> 450% of rated current
Dynamic response	Equivalent to LV double-conversion UPS — surpasses the ITIC curve & Semi47 requirements
Input power smoothing	Fully compliant with utility and slow-ramp distributed generation (e.g., gas turbines) dynamic load requirements
Load profile compatibility	Optimized for both industrial and AI data center load profiles
Energy storage autonomy	Scalable from seconds to multiple hours

Grid Stability Redefined

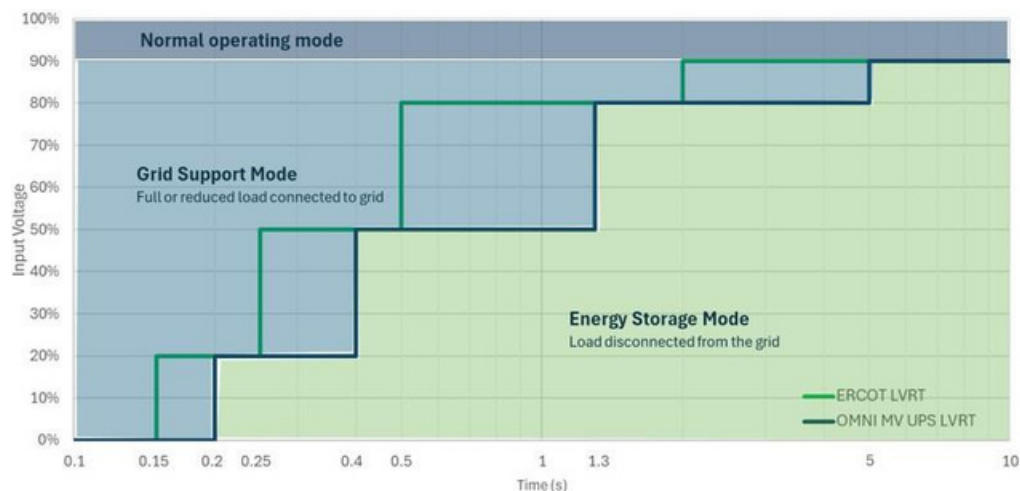
Dynamic Load Buffering

Dynamic Load Buffering is an advanced MV UPS functionality that decouples fast-changing AI and HPC loads from the upstream electrical infrastructure. By absorbing rapid load fluctuations and smoothing power demand seen by the utility grid and on-site generators, the system reduces voltage instability, frequency deviations, and mechanical stress on generation assets. This enables stable operation of large fluctuating loads while improving overall grid compatibility and power system reliability.



Fault Ride Through

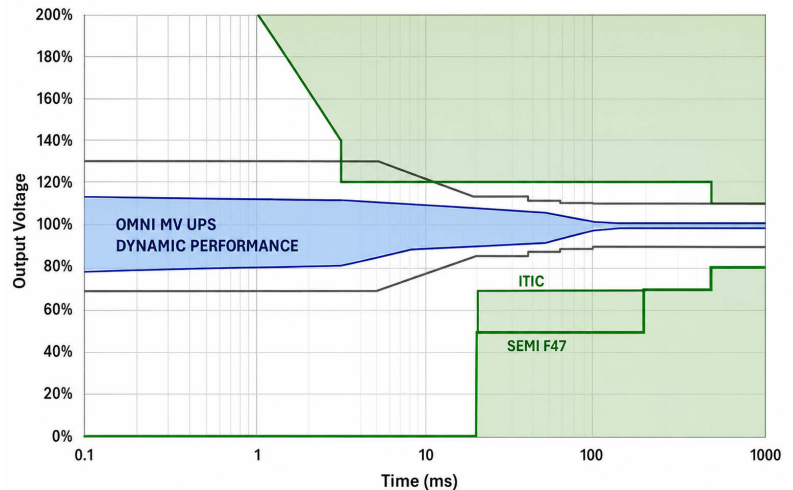
The MV UPS features advanced Fault Ride Through (FRT) capability designed to support modern large-load grid interconnection requirements. During grid disturbances, the UPS operates in grid support mode, maintaining full or partial load connection to the utility grid instead of immediately disconnecting the facility. The system ride-through performance exceeds current ERCOT Large Load (LL) voltage ride-through curve requirements, providing significant operational margin for future and evolving grid compliance standards.



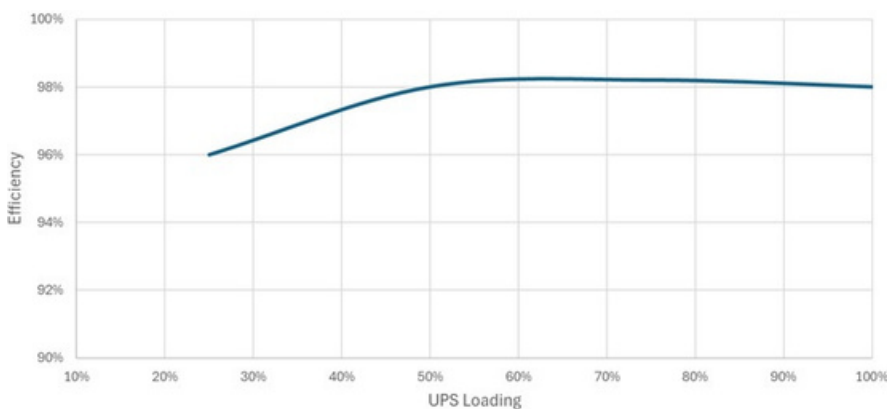
Worry Free Operations

Dynamic Performance

The MV UPS delivers ultra-fast dynamic performance with continuous full online operation and zero transfer time during upstream grid disturbances or rapid load changes. The system maintains tightly regulated output voltage under severe utility events and large transient load steps, providing load immunity performance exceeding industry standards such as ITIC and SEMI F47. Its dynamic response performance is in line with, or superior to, traditional double-conversion LV UPS systems compliant with IEC 62040-3 Class 1, while operating at medium voltage and multi-megawatt scale.



Efficiency



The MV UPS delivers industry-leading efficiency of up to 98% across a wide operating range, substantially reducing operational losses compared to traditional LV double-conversion UPS systems. Compared to alternative medium-voltage backup technologies, the system provides dramatically lower energy losses, resulting in significant reductions in operating costs.

Designed as a fully outdoor-rated solution, the MV UPS eliminates dedicated UPS HVAC infrastructure, reducing parasitic cooling losses and further improving overall facility efficiency and PUE for large-scale AI, HPC, and mission-critical applications.

Technical data

Rated Voltage	4.16kV to 34.5kV	Application specific voltage
Rated Power	5MVA, 5MW	Single unit
System Max Rated Power	50MW+	Parallel operation
Performance		
Efficiency	>98%	
Dynamic Output Performance	In line with LV double conversion UPS (IEC62040-3 Class 1) Surpassing the ITIC requirements Surpassing the SEMI F47 requirements	Full online, not transfer time
Architecture	Advanced Line interactive	
Output		
Steady State Voltage Variation	±1%	
Rated Frequency	50Hz or 60Hz	
Frequency Accuracy	±0.1%	ES mode only
Maximum Fault Clearing Current	>450%	

Advanced Functionality		
Dynamic Load Buffering	Adjustable load rate or fully adaptive	Input smoothing of rapidly cycling load profiles on the output
Fault Ride Through	LVRT and HVRT compatible	ERCOT and other grid requirements
Distributed generation support	Controlled load hand over	Keeping the upstream grid stable
BESS functionality	Yes	External EMS required

System Dimensions		
Single UPS unit, SMVA, outdoor NEMA3R		
Dimensions (LxWxH)	40' x 8'x 8'	
Weight	39T (86000lbs)	
Single battery system, SMW, outdoor		
Dimensions (LxWxH)	One or multiple 20'Lx 8'W containers	Autonomy and application dependent
MV Switchgear		
Dimensions (LxWxH)	Project dependent Indoor, Outdoor NEMA3R, Outdoor PDC	



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