

ARENA Series

Modular On-Line UPS

4 KVA - 90 KVA



Perfect Solution for Hyper Critical Applications



The ORION ARENA Series Modular UPS system employs a single-unit form factor that conserves floor space, and its lightweight, user friendly, 4KW to 15KW modules (3 phase/1 Phase options) provide reliable and cost effective expansion to meet your growing power needs. Scalability from 4kVA to 360 KVA enables UPS to grow with your expanding power protection needs.

Because the ARENA UPS is modular and scalable, you conserve capital – only investing in capacity when you need it. Hot Plug, Hot Swap system enables modules to be added or swapped without interruption of output power and without transferring to bypass. The ARENA UPS operates at super-high efficiency, which means less heat and lower cooling costs, too. The load is distributed equally between modules using Active Current Sharing at the Input, Output, and DC bus and enhanced system reliability is provided by the decentralised static switch. All modules have their own rectifier, charger, inverter and controller, thereby eliminating any potential single point of failure. The ARENA UPS also features advanced management and control functions including internet, RS232, TCP/IP, and SNMP communication.

- True Online Modular configuration with double conversion UPS and Hot Swappable architecture
- Compatible with 19" standard rack cabinet, convenient for integration in IT Racks
- High Performance DSP based technology with IGBT Rectifier and IGBT Inverter for lowest input Harmonics and Highest Efficiency
- 3 Level Inverter Technology for maximum efficiency
- Fully rated power (kVA=kW), i.e, Output PF= 1 for maximum power availability.
- On-Site Scalability and Provision for N+1 redundant configuration within the modular frame by inserting additional hot swappable power modules as per requirement.
- Possibility of enhancing UPS capacity upto 360 KW by operating upto 04 UPS frames in Parallel Redundant Configuration (PRS).
- Hot Swappable UPS power module with independent rectifier, battery charger, inverter and DSP logic circuitry without common controller
- Flexible configurations 1/1, 1/3, 3/1 and 3/3.
- High power density with 4~15 KW modules occupying only 2U of height.
- Input power factor >0.99.
- Advanced touch-screen based color LCD with graphic display, offers exhaustive monitoring and control making the UPS easier to operate
- Eco-mode operation for improved efficiency.
- Advanced Battery Charging intelligently monitors and optimises charging and discharging processes, effectively improving the life time of the battery
- Energy Saver Smart sleep function: System can intelligently shutdown inactive power modules to increase energy savings and achieve higher efficiency
- Wide range of Communication options: RS-232, RS-485, SNMP and potential-free contact communication channels.
- Multi-platform management and monitoring software.
- UPS can be integrated with battery cabinet, PDU and external maintenance bypass, offering an excellent choice for data centres

GREATER RELIABILITY

COST EFFICIENCIES

CAPITAL OPTIMISATION

ENHANCED SAFETY

SUSTAINABILITY

DOUBLE CONVERSION

MODULAR

DSP CONTROLS



SALIENT FEATURES

True double-conversion

ARENA UPS has On-Line double conversion, DSP controlled, IGBT rectifier and IGBT inverter technology to effectively insulate against all power disturbances and ensure highest reliability.

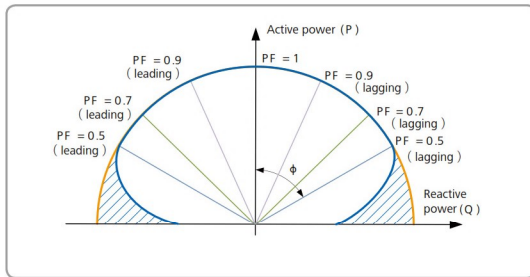
Rack independency

No need for extra cabinet or chassis. The ARENA UPS can be installed with servers in the same IT rack/cabinet. Besides, the vertical/horizontal conversion design enhances the flexibility and scalability of the modular UPS.



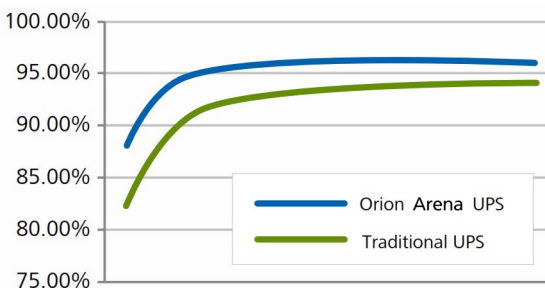
Output power factor 1.0

ARENA modular UPS features unity output power factor (1.0) which ensures that they are 100% compatible with today's high power factor loads. Higher PF ratings mean higher real power drawn from the UPS, and a UPS with a relatively low output PF could end up being overloaded, with subsequent overload trip-out or failure.



High efficiency

- High efficiency up to 96%, compared with the industry UPS, significantly reduces the loss by 50% and OPEX
- Input power factor >0.99 and THDi <3% significantly reduce pollution on the grid and breaker investment
- Eco-efficiency up to 99%: highly rated for resource efficiency



Customized system

Multiple ARENA UPS can easily form a complete system based on customer's demand. Please contact sales directly for the details.



DSP technology guarantees high reliability

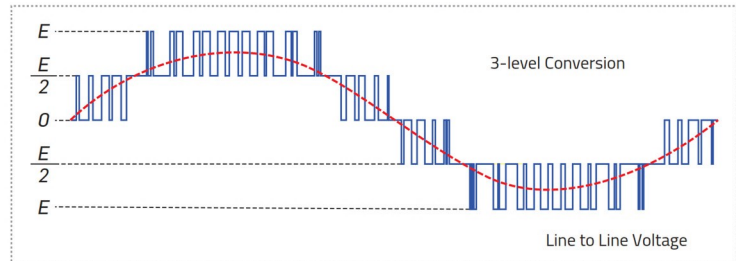
ARENA UPS features Digital Signal Processor (DSP) technology which digitizes the data and mathematically manipulates them to provide an improved solution with higher performance.

Advanced Multilevel IGBT Inverter Design

ARENA UPS with its most advanced 3-level system design, reduces the switching loss by >50% and reduction of the UPS size.

Advantages:

- Lower voltage stresses on power semi-conductors devices
- Considerable reduction of acoustic noise and EMI Interference
- Higher efficiency (lower losses)
- Higher system reliability and compactness



Voltage variation Δv at the terminals E @Two-level, $E/2$ @Three-level

Reduction of conversion loss, reduced EMI interface, reduction of the harmonic and reactor size

Decentralised Modular and Hot Swappable Design

Decentralised Modular design with Hot Swappable UPS modules for easy expansion, installation and maintenance. ARENA UPS has a patented modular design to enhance the flexibility of power expansion and maintenance. By simply removing four screws on the connector box, the power module can be easily removed from cabinet without disconnecting the wires. It also simplifies the process of maintenance and replacement to reduce the maintenance cost effectively.



Modularity and Scalability

The widest range of configurations for medium-sized power solutions. Vertical scalability up to 90 kVA per cabinet through wide range of configurations in cabinets of 2, 3, 4 or 6 modules, enabling configurations from 2 x 4 kVA (8 kVA) to 6 x 15 kVA (90 kVA) in a single cabinet.

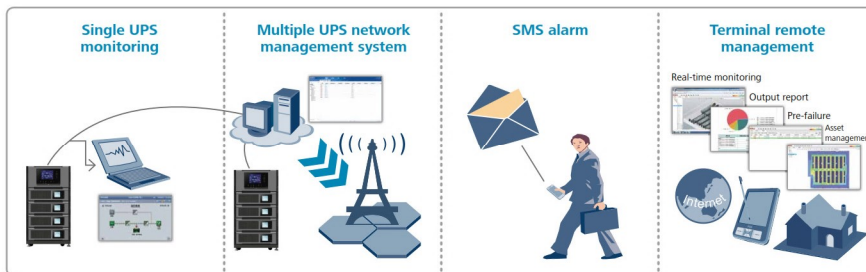
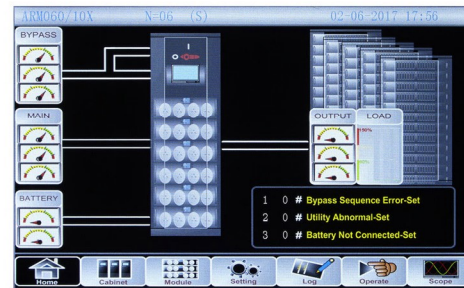
Horizontal scalability up to 360 kVA per system by using cabinets in parallel with configurations from 4 x 24 kVA (96 kVA) to 4 x 90 kVA (360 kVA). More power and flexibility for medium-sized facilities with the need for growth or high power.



NetAgent – UPS Management Software

NetAgent is an advanced UPS management software that is designed for users to remotely monitor and manage multiple UPS units in a networked environment, either by LAN or INTERNET. The software is able to protect your important data by executing a safety OS shutdown during power failure. Better yet, this software gives users the ability to store programming data and also scheduled a UPS shutdown when necessary:

- Allows control and monitoring of multiple UPSs via LAN and INTERNET
- User-friendly power analysis graphs
- Real-time dynamic graphs of UPS data
- Safety OS shutdown to prevent data losses during power failure
- Warning notifications via audible alarm, broadcast, mobile messenger, and e-mail
- Scheduled UPS on/off, battery test, programmable outlet control, and audible alarm control
- Password security protection and remote access management
- Supports multiple OS and local languages



TECHNICAL SPECIFICATIONS - ARENA SERIES UPS

MODEL	ARENA 33 10K-90K	ARENA 31 4K-90K	ARENA11 4K-90K
PHASE	3 phase in / 3 phase out	3 phase in + 1 Phase in / 1 phase out	1 phase in / 1 phase out
CAPACITY	10 KW – 90 KW	4 KW – 90 KW	4 KW – 90 KW
MODULE Rating	10 KW ~ 15 KW	4 KW ~ 15 KW	4 KW ~ 15 KW
PARALLEL CAPABILITY	Upto 04 UPS Frames in Parallel Redundant Configuration (Horizontal Expansion)		
INPUT			
Nominal Voltage	380VAC/ 400VAC/415VAC (3Ph+N+PE)	380VAC/ 400VAC/415VAC (3Ph+N+PE) 220VAC/230VAC/240VAC (1Ph+N+PE)	220VAC/230VAC/240VAC (1Ph+N+PE)
Voltage Range	200-520VAC(3-phase) @50% load 300-478VAC(3-phase)@100% load	200-520VAC (3-phase) @50% load 110-300 VAC (1-phase) @ 50% load 300-478VAC (3-phase) @100% load 160-280 VAC (1-phase) @ 100% load	110-300 VAC @ 50% load 160-280 VAC @ 100% load
Nominal Input Frequency	50/60Hz (Auto-Selectable)		
Frequency Range	40 Hz - 70 Hz (compatible with generators)		
Power Factor	>0.99 @ 100% load		
THDi	<3% @ full linear load		
OUTPUT			
Output Voltage	380/400V/415VAC (3Ph+N)	380/400V/415VAC (3Ph+N) 220/230/240VAC (L+ N)	220/230/240VAC (L+N)
AC Voltage Regulation (Static)	± 1%		
AC Voltage Regulation (Dynamic)	± 5% (with step load change 10% - 100%) and recovery to steady state within 1 Cycle		
Frequency Range(Synchronized)	46-54Hz		
Frequency Range(Free Run)	50 Hz ± 0.05 Hz with Slew Rate of < 1Hz/sec		
Current Crest Ratio	3:1 (min.)		
Harmonic Distortion	<1% THD (Linear Load) ; <5% THD (Non-linear Load)		
Transfer Time	AC to Batt. Mode and vice versa : 0 msec Inverter to Bypass and vice versa : < 1 msec (Synchronised)		
Waveform	Pure Sine-wave		
Overload	125% for 10 mins; 150% for 1 minute (in inverter mode) / 120% continuous (in Bypass mode)		
EFFICIENCY			
AC Mode	96% max @50~100% load; ≥94% @≥25% load;		
ECO Mode	>98%		

TECHNICAL SPECIFICATIONS (contd.) - ARENA SERIES UPS

BATTERY CHARGER	
Type	Constant Voltage - Constant Current Solid State charger
Battery Numbers	32 - 44 pcs (adjustable)
DC Bus Voltage	Nominal: 480 V (12V x 40 pcs), Maximum: 528 V (12V x 44 pcs), Minimum: 384 V (12V x 32 pcs)
Battery End Cell Voltage	1.7~1.75 V/Cell
Typical Recharging Time	6~10 hours recover to 90% capacity
Charging Current	Standard Charging current equivalent to 10% of Battery AH rating; up to 20% of Output active power
Smart Charging Module	Additional 15 Amps rack-mounted current charging module with Modular and hot-swappable design, (2U) to provide additional battery charging current for larger battery bank (extended back up time)
PROTECTION	
Protection	Battery Over Voltage/Under Voltage, Output AC Over/Under Voltage, Input Over/Under Voltage, Bypass abnormal Output Overload, Short Circuit, Over Temperature, Battery Deep Discharge, IP20 (IP 21 optional), Breakers (Input, Bypass, Output)
Reliability	MTBF $\geq$ 100,000 hours; DC bus capacitors $\geq$ 5 years' life-cycle.
Self-Diagnosis	UPS carries out self-test of Rectifier, Charger, Batteries & Inverter sections during start-up.
Cold Start	UPS can start up On Batteries without AC Supply (Mains)
Auto-Restart	UPS can automatically start after restoration of AC power following shutdown due to low battery (end of discharge) condition due to failure of the AC input power for an extended period
USER INTERFACE	
LCD Display	Colour touch screen LCD Screen for Comprehensive display of UPS status, Measurements, Settings and Fault conditions
Measurements (On LCD)	Input: Voltage & Frequency, Bypass: Voltage & Frequency, Output: Voltage & frequency, Battery Remaining time, Battery Level Indicator, Load Level Indicator, Battery Status/Test-Result, System Date/Time Setting, Current Time, Individual Power Module status, UPS and Module Identification (with Serial No.), Temperature, Charging current, Current & Historical Events, Output Breaker On/Off, Output kVA, kW, Output current, Battery voltage [positive and negative], Battery currents [positive and negative], DC bus voltages [positive and negative], Fan operating time, Operating time of DC capacitors, Inlet air temperature, Output air temperature, Rectifier IGBT temperatures, Inverter IGBT temperature
Fault Indication (On LCD)	Main Input Fault, Power Module General Fault, Battery Fault, Bypass Static Switch Fault, Parallel Fault, System General Fault, Over Load Fault, Over Temperature, CAN Fault, Line SCR Fail, Bypass Temperature Fault, Bypass SCR Fault, Battery Open, Battery voltage High, Module Un-Lock, Fan Lock, Line Phase Error, Bypass Phase Error, Redundancy Fail, Parallel System Configuration Error, End of Life alert for Batteries, DC capacitors, Cooling Fans
Event Logs	$\geq$ 500 event logs
Indicators /Alarm	UPS On/Off/Mains/Battery/Bypass, Mimic display, Short Circuit/DC Fault(trip), Overload, Battery Low, Shutdown
Bypass	Automatic & Bi-directional static by-pass (In-built) and Maintenance Bypass
REPO	Remote Emergency Power OFF to shutdown UPS when emergency situation happens.
PHYSICAL	
Dimension, W x D x H (mm)	485*751*1033 (6 module Rack); 485*697*575 (4 module Rack); 485*697*398 (2 module Rack) 436*590*85 (Power Module)
Net Weight (kgs)	Cabinet Weight: 85 (6 module Rack); 51 (4 module Rack); 42 (2 module Rack) Power module Weight: 15.5
ENVIRONMENT	
Humidity & Temperature	0-95 % RH (non-condensing) @ 0-40°C operating and -10 - +60°C Storage
Noise Level	<60dB @ 1 Meter
Operating Altitude	0 to 3000m (0 to 10,000 ft)
Cooling	Forced Air
MANAGEMENT	
Smart RS-232/USB	Supports Windows@ 2000/2003/2008/7/8/10, Linux and MAC
SNMP	Power management from SNMP manager and web browser, ModBus, AS 400, Environment Monitoring
STANDARDS	
Certifications	ISO 9001, ISO 14001, ISO 45001, ISO 50001, CE, RoHS
Safety	IEC 62040-1
EMC	IEC 62040-2
Performance	IEC 62040-3

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