
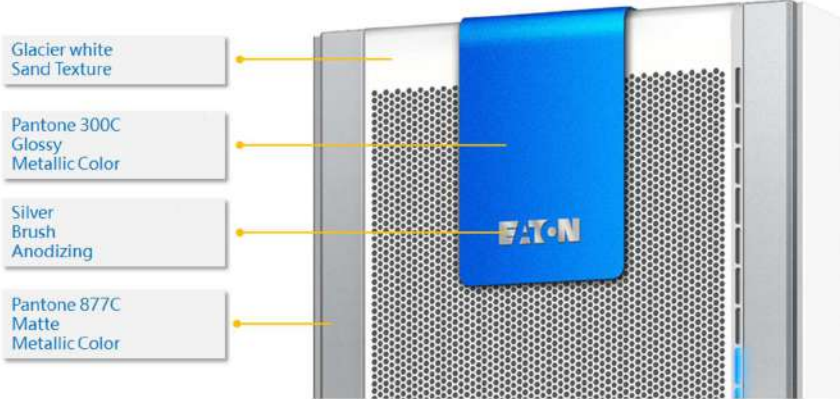


Eaton® 93PR 300kVA Modular UPS Technical Specification

Model	60-300kW
Catalog	93PR-300
CTO	4 Breakers, W/O back-feed, Chinese CTO: 9R106A0500E01C0 9106-43201 4 Breakers, With back-feed, English CTO: 9RZ06A0500E01B0 9106-43202 4 Breakers, W/O back-feed, With Sidecar, top exhaust, Chinese CTO: 9R106A0500J00C0 9106-43203 4 Breakers, With back-feed, With Sidecar, top exhaust, English CTO: 9RZ06A0500J00B0 9106-43204 MBS only, W/O back-feed, Chinese CTO: 9R106A0500B01C0 9106-43205
Outlook	 <p>(default: GLACIER WHITE, optional: black)</p>
Color Spec	 <ul style="list-style-type: none"> Glacier white Sand Texture Pantone 300C Glossy Metallic Color Silver Brush Anodizing Pantone 877C Matte Metallic Color
UPM Rating (all operating modes)	62.5kVA/62.5kW at 230VAC, 40°C 60kVA/60kW at 230VAC, 40°C
UPS Rating (all operating modes)	250kVA/250kW pf1.0 @40°C (4 UPM) 300kVA/300kW pf1.0 @40°C (5 UPM)
Configurable Upgradability	60kW*N (1≤N≤5), 62.5kW*N (1≤N≤4)
Parallel Capability	4x parallel, maximum 1.2MW. could extend to 8x with factory customization.
UPS Topology	Double Conversion, IGBT Module Converters, three level Static UPS
Performance classification	VFI-SS-111, IEC62040-3
UPM Dimensions: W x D x H (mm)	439 x 700 x 173.4 (4U height) 590 x 980 x 325 (Packaged)
UPM Weight	39kg Net, 44kg Gross, Modules shipped separately
UPS Dimensions: W x D x H (mm)	600 x 1100 x 2000 (4x19" frame unpackaged)

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Model	60-300kW
	800 x 1100 x 2000 (with side car)
Frame Weight (kg)	375
Degree of protection	IP20, with front door washable dust filter
Cabinet color theme	Default: Glacier White, Optional: Black, RAL 9005
Switchgear (Internal)	4 switches option (INPUT/OUTPUT/Bypass/Maintenance) MBS only option (Maintenance)
Cable entry	Top & Bottom (side car is needed for bottom entry)
Ventilation	Rear exhaust, top exhaust optional
Accessories	Side Car Load Sync Box

ENVIRONMENT

Ambient storage temperature	Range of -25 to +55°C in the protective package
Ambient service temperature	300kVA/300kW 40°C at 230VAC
Maximum service altitude	1000m above sea level. Maximum 2000m with 1% de-rating per each additional 100m above
Relative humidity	+5% to 95%, no condensation allowed
Acoustic noise at 1m	75~80dBA
Electromagnetic Compatibility	Immunity and emission to IEC/EN 62040-2 C3 C3

USER INTERFACE & COMMUNICATIONS

Display	7" Touchscreen Color display and 4 separate summary LEDs for system status, door mounted LED bars for long range view of system status
Standard Communication Ports	3x Mini-Slot, 1x EPO input (NC or NO), 1x Relay output (NO/NC), 5x Building Alarm inputs, 1x USB Host, 1xUSB Slave, 1x RS232 Service Port
Optional Connectivity Options	Web/SNMP Relay/RS232 Industrial Relay PXGMS Industrial Gateway Card, PXGMS卡支持SNMP/Modbus/BACnet

ELECTRICAL INPUT CHARACTERISTICS

Earthing system compatibility	TN, TN-S, TN-C, TN-C-S, TT (Three-phase, four-wire + PE)
Rated input voltage and voltage tolerance	Rectifier: 230/400Vac nominal (220/380, 240/415 Selectable) Tolerance: (-10%, +20%) at 100% load (-40%, +20%) at 50% load without battery discharge Bypass: 230/400Vac nominal (220/380, 240/415 Selectable) Tolerance: 196/340 – 253/438V (-15%, +10% of nominal)
Operating frequency / tolerance	50 or 60Hz; Tolerance 40-72Hz
Input current distortion	<3% THD (Linear load condition at rated input current)
Input power factor	>0.99pf @ 20-100% load, >0.95 @ 10-20% load
Inrush current	<50A
Rectifier ramp-up, rectifier start and load step	<100% of rated current. Rectifier ramp-up 10A/s (default), configurable, min.1A/s
Number of input phases	3 phases + Neutral +PE
Rated rectifier input current @ 400V	452.5A@300kW
Max. rectifier input current @ 400V	475A
Bypass input current (rms @ 400V)	435A (300kW Rated)
Recommended/Maximum	543.75A (Maximum)

ELECTRICAL OUTPUT CHARACTERISTICS - NORMAL MODE

Rated output voltage	220/380, 230/400, 240/415Vac, three phases
Output voltage variation	<1% static load, 4% with 20ms recovery from 100% load step
Crest factor	3:1
Rated output frequency	50Hz (default) or 60Hz

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Model	60-300kW	
Output frequency variation	+/-0.1Hz with slew rate 1Hz/s	
Total output voltage distortion	<1% linear load, <5% non-linear load	
Short circuit capability	2xIn per Module	
Fault clearing capability (without bypass)	180A*N gL/gG fuse (N stands for installed UPM number)	
Overload capacity without bypass	30 min >102–110% load 10 min >110%~125% load 30sec 126-150% load 300ms > 150% load	
Overload capacity with bypass	125% continuous @30°C, 115% continuous @40°C	
Load power factor range	0.8 lagging to 0.8 leading without de-rating	
Range of frequency sync with bypass	±4Hz as default. User settable 0.5 to 5 Hz	
ELECTRICAL OUTPUT CHARACTERISTICS - STORED ENERGY MODE		
Transfer to/from stored energy	No break	
Rated output voltage	220/380, 230/400, 240/415Vac, three phases	
Output voltage variation	<2% static load, 4% with 20ms recovery from 100% load step	
Crest factor	3:1	
Rated peak output voltage	325V, +/-20V	
Rated output frequency	50Hz (default) or 60Hz	
Output frequency variation	±0.005Hz (single module), ±0.07Hz (Parallel system)	
Total output voltage distortion	5%	
Short circuit capability	250Amp per UPM 400ms	
Fault clearing capability	900gL/gG fuse	
Overload capability	102~110% 1mins @30°C >110% 300ms @30°C	
Load power factor range	0.8 lagging to 0.8 leading without de-rating	
Number of output phases	3 Phase + Neutral	
EFFICIENCY (Input/Output)		
	60kW X 5	62.5kW X 4
Linear Load	100% load: >96%	>96%
Efficiency, Double Conversion Mode	75% load: >96.5%	>96.5%
@ 400V/50Hz	50% load: >97%	>97%
	25% load: >96%	>96.9%
Heat Dissipation, Double Conversion Mode @ 400V/50Hz	100% load: 12kW	10.14kW
	75% load: 7.8kW	6.5 kW
	50% load: 4.9kW	3.81 kW
	25% load: 3kW	2.01 kW
Linear Load Efficiency, ESS Mode @ 400V/50Hz	100% load: 99.2%	98.96%
	75% load: 99.2%	99.01%
	50% load: 99.0%	99.00%
	25% load: 98.6%	98.78%
Air Flow	(m³/h) L/s	2513 698
		2094 582
BYPASS CHARACTERISTICS		
Automatic bypass	Static bypass switch, continuously rated, no break transfer	
Automatic bypass nominal rating	Maximum 300kW	
Automatic bypass thyristor i²t value	1805000 A²s	
Bypass fuse	900AMP	
Back-feed protection	Optional internal back-feed contactor	
Separate bypass input feed	Standard (single feed cable links fitted on site)	
Manual bypass switch	Standard	
ESS (Energy Saver System) MODE CHARACTERISTICS		
Performance classification	VFD, transferring to VFI (Double Conversion mode) if limits are exceeded	

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Transfer time to double conversion	Mains available: No break (0ms), Mains failure: 2ms typical
Acceptable output voltage variation	±10% of nominal voltage
Acceptable output freq. variation	±3Hz
UPS Audible Noise	<75dBA @ 1m in 25°C ambient temperature
Storm Detection	UPS locks into double-conversion mode when three power line disturbances have forced the unit to double-conversion three times (user adjustable) within a one-hour period (user adjustable)
High Alert mode	UPS will stay on double-conversion for one hour (user adjustable), after which the unit will automatically return to operate in ESS mode
BATTERY	
Battery nominal voltage	432V (36 x 12V, 216 Cells) 50kW 456V (38 x 12V, 228 Cells) 55kW 480V (40 x 12V, 240 Cells) 60kW/62.5kW
Float charge voltage	216 x 2.30V = 497Vdc 50kW 228 x 2.30V = 524Vdc 55kW 240 x 2.30V = 552Vdc 60kW/62.5kW
End of Discharge Voltage	216 x 1.67V = 360Vdc 50kW 228 x 1.67V = 380Vdc 55kW 240 x 1.67V = 400Vdc 60kW/62.5kW
Maximum charge voltage	VRLA: 294 x 2.35V = 690Vdc (ABM enabled) Lithium : 700Vdc
Battery technology	2-wire, no central tapping required Valve Regulated Lead Acid, Ni-Cad 5 or 10year design life Certified Lithium-ion battery
Stored energy time	No limitation within allowable ambient temperature.
Charging current (Default/Maximum)	25A default, Maximum 40Amp Per UPM, future extend to 60Amp by firmware upgrade
Restored energy time to 90%	Typically, 10 x Discharge time
Battery recharge profile	Advanced Battery Management (ABM®) = 90% resting, 10% floating/charging
VRLA Battery cut off voltage	The total Battery voltage is limited by EOD 1.67 to 1.75 VPC, Configurable or automatic (load adaptive)
Battery cold start	Support
Common battery	Common for internal parallel UPM
Battery Trip	+48V Shunt trip by default,
Battery Auxiliary	Standard Equipped