

# DPA 60

## 208V UL • Modular UPS

### (20–60kW)



#### 1.1 General characteristics

##### General characteristics – Cabinet

	Values
Model: DPA 60, UL Series	
Power, rated:	
Cabinet Maximum Rating	60kW/kVA
Power Module Rating	20kW/kVA
Cabinet Power, range	20–60kW/kVA
UPS type: online, double conversion, transformerless, modular, decentralized parallel architecture (DPA)	
Parallel capability: up to 5 cabinets, for up to 300 kW capacity	
Battery: Internal configurations available; up to 6 strings. No external battery cabinets.	
Performance classification: VFI-SS-111	

##### Mechanical

Dimensions (width × height × depth)	31.0 x 77.8 x 36.4 (787 x 1976 x 925) In (mm)
Mass, approximate: 20kW, 10 min backup	1200 (544) lbs. (kg)
20kW, 15 min backup	1398 (634) lbs. (kg)
20kW, 20 min backup	1596 (724) lbs. (kg)
20kW, 30 min backup	1794 (814) lbs. (kg)
20kW, 40 min backup	1992 (904) lbs. (kg)
40kW, 6 min backup	1530 (694) lbs. (kg)
40kW, 10 min backup	1728 (784) lbs. (kg)
40kW, 13 min backup	1926 (874) lbs. (kg)
40kW, 17 min backup	2124 (963) lbs. (kg)
60kW, 5 min backup	1860 (844) lbs. (kg)
60kW, 8 min backup	2058 (933) lbs. (kg)
60kW, 10 min backup	2256 (1023) lbs. (kg)
Acoustic noise (acc. to IEC 62040-3)	
In normal mode (at ≤25°C) at 100%/50% Load	71/68 dBA @ 3m
In battery mode (at ≤25°C) at 100%/50% Load	71.5/69 dBA @ 3m

##### Safety

Access: Operator/Restricted Access  
Degree of protection against hazards and water ingress: NEMA 1/IP 20

##### Electromagnetic compatibility

Emission UPS Cat/Immunity UPS Cat	C3/C3
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##### Environmental

Storage temperature range	-25–+70°C
Operative temperature range	0–+40°C
Relative humidity range (non-condensing)	≤ 95%
Maximum altitude without de-rating	1000 m

##### Additional and usual information

Connection: 5 wires, 3 phase + Neutral + Ground (PE)	
Cable entry: Bottom entry standard Top cable entry side car optional	Top cable entry side car dimensions: 8.0 x 77.8 x 36.4 (203 x 1976 x 925) In (mm) 96 (44) lbs. (kg)

Accessibility: Front access only

Unit Color: Powder coat, Matte Black, Fine Structure (IGP-DURA@mix 331M RAL 9005)

##### Standards

Safety	UL 1778 5th edition, CSA C22.2 No. 107.3-14 Third Edition
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#### General characteristics – Module

Model: 20 kW Power Module for DPA 60 UL

Power, rated:

Apparent	20kVA
Active	20kW

UPS type: online, double conversion, transformerless, modular, decentralized parallel architecture (DPA)

Electromagnetic Compatibility (EMC) IEC/EN 62040-2 C3

#### Mechanical

Dimensions (width × height × depth): 27.95 x 7.00 x 29.53 (710 x 178 x 750) In (mm)

Weight, approximate: 132 (60) Lbs. (kg)

#### Additional and usual information

Back feed protection: Included

Color: Black (RAL 9005)

### 1.2 Input characteristics

	UPS cabinet values	UPS module values
Power, rated:	60kw	20kW
Voltage (steady-state, r.m.s.), rated:	3 x 208/120 + N VAC	
Tolerance at 208V (booster off)	-15/+10%	
Tolerance at 208V (booster on)	-15/+10% at <100% load -20/+15% at <80% load, -30/+15% at <60% load	
Frequency, rated	60/50Hz +/-5%	
Current (r.m.s.), rated (with battery charged and input nom)	180A	60A
Maximum (with battery charging and input 208/120V)	181.5A	61A
Total Harmonic Distortion (THDi)	< 4%	
In-rush current	< 100% of rated current	
Power factor	0.99 @ 100% load	

AC power distribution system: TN-S, TN-C, TN-C-S, TT

Note: in static bypass mode or eco-mode TN-C and TN-C-S can cause PE current to rise above 5% of phase currents.

Phases required	3
Neutral required	Yes

#### Additional and usual information

Walk In/Soft Start Yes

Single input feed is standard. Dual input feed configurable once installed.

### 1.3 Output characteristics

	UPS cabinet values
Power, rated:	60kW
AC power distribution system: TN-S, TN-C, TN-C-S, TT	
Available phases	3
Neutral available	Yes
Voltage (steady state, r.m.s.), rated:	3 x 208/120 + N VAC
Variation in normal mode	± 2.5%
Total harmonic distortion (THDv), 100% load, normal mode:	
Linear	< 2.0%
Non-linear (according to IEC 62040-3)	< 4.0%
Total harmonic distortion, 100% load, battery mode:	
Linear	< 2.0%
Non-linear (according to IEC 62040-3)	< 4.0
Voltage unbalance and phase displacement, 100% load unbalance	0 °
Voltage transient and recovery time, 100% step load:	
Linear	± 4%
Non-linear (according to IEC 62040-3)	± 4%
Transfer normal mode --> battery mode	0%
Frequency (steady-state), rated:	60/50 Hz
Frequency tolerance/variation in normal mode (frq. Synchronized with mains)	± 2/± 4%
Frequency tolerance/variation in battery mode (free-running)	± 0.1%
Max synch phase error (referred to a 360° cycle)	< 2 °
Max slew-rate	1 Hz/s
Nominal current (In), r.m.s. rated:	166.5A
Overload on inverter	30 secs @ 150% load 5 min @ 125% load 20 min @ 110% load
Inverter Output Short Circuit Capability	300% for 100 ms

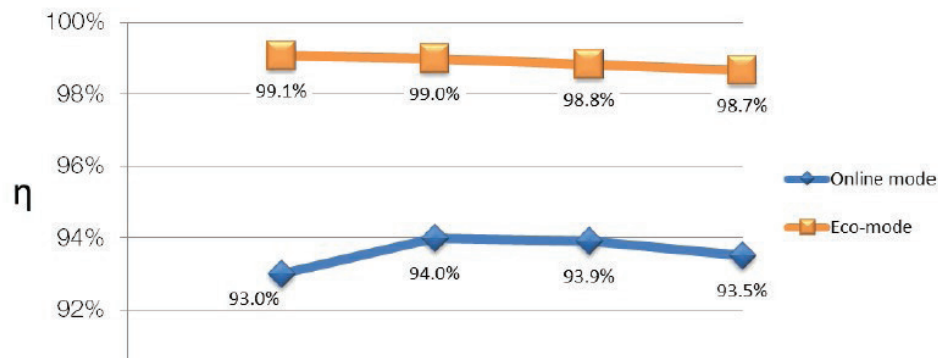
Load power factor, rated	1.0
Online double conversion efficiency in normal mode, linear load:	
100% load	93.5%
75% load	93.9%
50% load	94.0%
25% load	93.0%
Eco-mode efficiency, linear load	
100% load	98.7%
75% load	98.8%
50% load	99.0%
25% load	99.1%
Crest factor (load supported)	3:1
Static bypass	
Type: automatic, static switch in each module	
Transfer time: inverter → bypass/bypass → inverter/in eco-mode	<1/<5/<6 ms
Rated current	166.5 A
Fault clearing capability (bypass mode) for 20 ms	10xIn A
Overload current on bypass mode (< 25°C)	Continuously @ 110% load min.

#### 1.4 Battery Characteristics

	Values
Technology: VRLA, vented lead-acid, NiCd	
Battery/DC Nominal Input (Internal)	360 Vdc
Battery/DC Nominal Input (External)	300–420 Vdc
Number of 12 V blocks (Internal)	30
Number of 12 V blocks (External)	25–35
Number of 1.2 V NiCd cells (External)	250–350
Battery charger	Each module has its own decentralized charger
Max. current charger capability (per power block)	12A
Max. power charger capability (per power block)	6kW
Floating voltage (VRLA/NiCd)	2.25/1.40VDC
End of discharge voltage (VRLA/NiCd)	1.65/1.05VDC
r.m.s. ripple current (percentage of the battery capacity )	2%
Temperature compensation	Optional
Battery test	Automatic and periodic battery test (selectable)

##### 1.3.1

Graph: AC/AC efficiency with linear load @ cos (phi) 1 \*



\* Tolerance of ± 0.5% applies on all figures

Heat dissipation per module with nonlinear load			
Number of modules	1	2	3
UPS power rating	20kW	40kW	60kW
Heat dissipation with 100% linear load	1390 W 4743 BTU	2780 W 9485 BTU	4170 W 14229 BTU
Heat dissipation with 100% non-linear load (according to IEC 62040-3)	1600 W 5460 BTU	3200 W 10920 BTU	4800 W 16380 BTU
Airflow (25° – 30°C) with 100% non-linear load (according to IEC 62040-3)	690 m3/h	1380 m3/h	2070 m3/h
Heat dissipation without load	200 W	400 W	600 W

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