

APC Matrix-UPS 5kVA 208V/240V In 120/208/240V Out



APC Matrix-UPS, 3750 Watts / 5000 VA, Input 208V / Output 120V, 208V, Interface Port DB-9 RS-232, SmartSlot, Extended runtime model

Includes: CD with software, Smart UPS signalling RS-232 cable, User Manual

Standard Lead Time: Usually Ships within 2 Weeks

Matrix-UPS Features & Benefits

Availability

Automatic internal bypass	Supplies utility power to the connected loads in the event of a UPS overload condition or fault.
Intelligent Battery Management	Maximizes battery performance, life, and reliability through intelligent, precision charging.
Hot-swappable batteries	Ensures clean, uninterrupted power to protected equipment while batteries are being replaced
Hot-swappable modules	Ensures clean, uninterrupted power to protected equipment during Power Module replacement.
Scalable runtime	Allows additional run time to be quickly added as needed.
Automatic self-test	Periodic battery self-test ensures early detection of a battery that needs to be replaced.
Manageable external batteries	Reduces preventative maintenance service needs by monitoring the health and status of the external batteries and their expected runtime.
Battery modules connected in parallel	Delivers higher availability through redundant batteries.
Automatic restart of loads after UPS shutdown	Automatically starts up the connected equipment upon the return of utility power.
Modular design	Provides fast serviceability and reduced maintenance requirements via self-diagnosing, field-replaceable modules.

Adaptability

Adjustable voltage-transfer points	Maximizes useful battery life by widening the input voltage window or tightening the output voltage regulation.
Plug-and-Play external batteries	Ensures clean, uninterrupted power to the loads when adding extra runtime to the UPS.
Field-replaceable power distribution panel	Ensures compatibility with equipment that has different plug types.

Manageability

SmartSlot	Customize UPS capabilities with management cards.
LCD display	Alpha-Numeric Display which displays system parameters and alarms.
Serial Connectivity	Provides management of the UPS via a serial port.
InfraStruXure Manager Compatible	Enables centralized management via the APC InfraStruXure® Manager.

Serviceability

User-replaceable batteries	Increases availability by allowing a trained user to perform upgrades and replacements of the batteries reducing Mean Time to Repair (MTTR)
Predictive failure notification	Provides early-warning fault analysis ensuring proactive component replacement.
User-replaceable batteries	Increases availability by allowing a trained user to perform upgrades and replacements of the batteries reducing Mean Time to Repair (MTTR)
User-replaceable power modules	Enables simple upgrades and replacements of the Power Modules.
Audible Alarms	Actively let you know if the unit is on battery, if the battery is low or if there is an overload condition.

Protection




Power conditioning

Protects connected loads from surges, spikes, lightning, and other power disturbances.


Boost and Trim
Automatic Voltage
Regulation (AVR)

Gives higher application availability by correcting low and high voltage conditions without using the battery.

Output

Output Power Capacity	3750 Watts / 5000 VA	
Max Configurable Power	3750 Watts / 5000 VA	
Nominal Output Voltage	120V,208V	
Efficiency at Full Load	93%	
Output Voltage Distortion	Less than 5% at full load	
Output Frequency (sync to mains)	57 - 63 Hz for 60 Hz nominal	
Crest Factor	up to 5 : 1	
Waveform Type	Sine wave	
Output Connections	(6) NEMA 5-15R	
	(1) NEMA L14-30R	
	(2) NEMA L6-30R	
Bypass	Internal Bypass (Automatic and Manual)	

Input

Nominal Input Voltage	208V	
Input Frequency	60 Hz +/- 5 Hz	
Input Connections	NEMA L6-30P	
Cord Length	1.83 meters	
Input voltage range for main operations	156 - 252 (208) / 176 - 282 (240V)V	
Other Input Voltages	240	

Batteries & Runtime

Battery Type	Maintenance-free sealed Lead-Acid battery with suspended electrolyte : leakproof
Typical recharge time	3.30 hour(s)
RBC™ Quantity	2
Replacement battery cartridge note	The MX5000 ships with 2-SmartCell's. There is no RBC available for a standard SmartCell. If a SmartCell-XR is being used,then an RBC14 may be purchased.
Typical Backup Time at Half Load	27.8 minutes (1875 Watts)
Typical Backup Time	10.2 minutes (3750 Watts)

at Full Load

Runtime Chart

[Matrix-UPS](#)

Extended Run Options

[APC Matrix-UPS 5kVA 208V/240V In 120/208/240V Out](#)

Communications & Management

Interface Port(s)	DB-9 RS-232,SmartSlot
Available SmartSlot™ Interface Quantity	1
Control panel	Multi-function LCD status and control console
Audible Alarm	Alarm when on battery : distinctive low battery alarm : configurable delays
Emergency Power Off (EPO)	Yes

Physical

Maximum Height	683.00 mm
Maximum Width	351.00 mm
Maximum Depth	452.00 mm
Net Weight	137.73 KG
Shipping Weight	155.91 KG
Color	Beige
Units per Pallet	1.00

Environmental

Operating Environment	0 - 40 °C
Operating Relative Humidity	0%
Operating Elevation	0-3000 meters
Storage Temperature	-15 - 45 °C
Storage Relative Humidity	0%
Storage Elevation	0-15000 meters
Audible noise at 1 meter from surface of unit	60.00 dBA
Online Thermal Dissipation	900.00 BTU/hr

Conformance

Regulatory Approvals	CE,CSA,FCC Part 15 Class A,UL 1778
Standard Warranty	2 years repair or replace,optional on-site warranties available,optional extended

warranties available

**The time to recharge to 90% of full battery capacity following a discharge to shutdown using a load rated for 1/2 the full load rating of the UPS.

8.0 Storing the UPS

8.1 Storage Conditions

The UPS should be covered and stored in a cool dry location. The UPS should be stored with the Battery Packs in a fully charged state. That is, the reported battery capacity should be at 100% before the UPS is switched off for storage. Disconnect the Battery Packs from the UPS and from each other (where applicable). Store the Battery Packs in an upright position.

8.2 Extended Storage

To achieve expected run time following extended storage, the UPS should be allowed to refresh the Battery Packs every 6 months in environments where the ambient temperature is -15°C to $+30^{\circ}\text{C}$ (5°F to 86°F). For extended storage in environments where the ambient temperature is $+30^{\circ}\text{C}$ to $+45^{\circ}\text{C}$ (86°F to 113°F), the UPS should be allowed to refresh the Battery Packs every 3 months.

9.0 Specifications

Note: Where specification ratings differ, values for the UPS configured for 240 Vac operation are given in brackets [].

9.1 Input

Nominal input voltage: single phase 208 Vac [240 Vac].

Nominal input frequency: 60 Hz.

On-line efficiency @ full load: $> 92\%$, $> 93\%$ with fully charged batteries for the 3000VA and 5000VA models, respectively.

Input circuit breaker: 20 Amp, 30 Amp; for the 3000VA and 5000VA models, respectively.

Input connector: NEMA L6-30P (250V/30A).

9.2 Transfer Characteristics

Frequency limits for on-line operation: 60 Hz, $\pm 5\%$.

Input voltage limits for on-line operation: -25% to $+15\%$ of the nominal input voltage.

Transfer to/from on-battery: 0 ms typical with computer loads, 1.5 ms maximum. Transfer occurs synchronous with the utility voltage phase.

Transfer to/from bypass: Transfers to and from bypass occur synchronously with the utility voltage phase. Transfers both to and from bypass mode occur in 0 mS typically.

9.3 Output Characteristics

Maximum load: 3000 VA or 2250 W @ 0.75 power factor; 4700 VA or 3750 W @ 0.8 power factor [5000 VA, 3750 W @ 0.75 power factor] for the 3000VA and 5000VA models, respectively.

Nominal output voltages: 208 Vac / 120 Vac [240 Vac / 120 Vac].

On-line voltage regulation: $\pm 5\%$. When "Auto" or "Low" utility failure sensitivity is selected by the user, the output voltage regulation may become relaxed to $+5\%$, -12% .

On-line frequency regulation: 60 Hz, $\pm 5\%$ (synchronized to the utility).

On-battery output voltage regulation: $\pm 5\%$.

On-battery output frequency regulation: 60 Hz, ± 0.1 Hz unless synchronized to utility frequency during utility brownout.

On-battery output voltage total harmonic distortion: $< 5\%$.

Protection: overcurrent and short circuit protected, latching shutdown upon overload.

Output connections: (6) NEMA 5-15R receptacles, (1) NEMA L14-30R receptacle, and (2) NEMA L6-30R receptacles.

9.4 Noise and Surge Isolation

Isolation: galvanic isolation, output neutral bonded to ground.

Normal mode EMI/RFI noise attenuation: 40 to 60 dB over 100 kHz to 30 MHz range.

Common mode EMI/RFI noise attenuation: 40 to 60 dB over 100 kHz to 30 MHz range.

Normal mode let-through: < 1% of applied ANSI C62.41 Category A or B ± 6 kV test.

Common mode let-through: < 2% of applied ANSI C62.41 Category A or B ± 6 kV test.

9.5 Battery Pack

Battery type: spill proof, maintenance free sealed lead-acid.

Nominal battery pack voltage: 48 Vdc.

Typical battery life: 3 to 6 years (depends upon number of discharge cycles and normal ambient temperature).

Recharge time: see table in section 9.9.

Maximum number of Battery Packs: limited only by desired recharge time.

9.6 Environment

Operating temperature: 0°C to 40°C (32°F to 104°F).

Storage temperature: -15°C to 45°C (5°F to 113°F).

Operating and storage relative humidity: 0 to 95%, non-condensing.

Operating elevation: 0 to 3,000 m (10,000 ft).

Storage elevation: 0 to 15,000 m (50,000 ft).

Electromagnetic immunity: IEC 801-2, 801-3, 801-4, 801-5; severity level III or IV.

Audible noise: < 55 dBA at 1 m (3 ft).

9.7 Physical

UPS dimensions (EU and IU mated): 17.8" H x 13.8" W x 17.8" D (45.2 x 35.1 x 45.2 cm).

Battery pack dimensions: 9.1" H x 6.9" W x 17.8" D (23.1 x 17.5 x 45.2 cm).

UPS weight (EU and IU mated): 145 lb (65.8 kg), 176 lb (79.8 kg) for the 3000VA and 5000VA models, respectively.

Electronics Unit (EU) weight: 40 lb (18.1 kg), 45 lb (20.4 kg) for the 3000VA and 5000VA models, respectively. Add 8 lbs (3.6 kg) for shipping independent of IU.

Battery pack weight: 64 lbs (29.0 kg). Add 5 lbs (2.3 kg) for shipping independent of UPS.

Total shipping weight - 3000VA model: 244 lb (110.7 kg). Includes weight of packaging, mated EU and IU, and one (1) Battery Pack.

Total shipping weight - 5000VA model: 344 lb (156.0 kg). Includes weight of packaging, mated EU and IU, and two (2) Battery Packs.

Color: beige.

9.8 Approvals

Safety approvals: UL per 1778, CSA per C22.2.

EMC verification: FCC, CDC Class A verified.

9.9 Typical On-Battery Run Times

Typical On-Battery Run Time Versus Load, 3000 VA Matrix-UPS with SmartCells, in Hours								
	Number of SmartCells							
Computer Load (VA)	1	2	3	4	5	6	7	8
250	3.07	7.20	11.56	15.93	20.29	24.65	29.02	33.38
500	1.46	3.52	5.80	8.24	10.69	13.13	15.57	18.01
1000	0.57	1.46	2.46	3.52	4.58	5.80	7.02	8.24
1500	0.33	0.83	1.46	2.11	2.81	3.52	4.23	4.99
2000	0.22	0.57	0.99	1.46	1.93	2.46	2.99	3.52
2500	0.17	0.46	0.78	1.18	1.59	1.99	2.45	2.90
3000	0.13	0.36	0.62	0.92	1.25	1.59	1.92	2.30
	Recharge Time, in Hours							
	1.2	2.8	2.7	3.8	4.9	6	7	8.1
Calculations based on loads with a .75 power factor. Lower power factor loads will yield higher run times. Run times are typical at 25° C (77° F). Recharge times to 90% of rated capacity after discharge into 50% of rated load.								

Typical On-Battery Run Time Versus Load, 3000 VA Matrix-UPS with SmartCell XR Battery Packs, in Hours								
	Number of SmartCell XR Battery Packs							
Computer Load (VA)	1	2	3	4	5	6	7	8
1000	3	6.75	10.75	14.75	18.75	22.75	26.75	30.75
1500	1.8	4.3	6.9	9.5	12.1	14.7	17.3	19.9
2000	1.2	3	5	7	9	11	13	15
2500	0.9	2.4	4	5.6	7.2	8.8	10.4	12
3000	0.75	1.8	3.25	4.7	6.15	7.6	9.05	10.5
	Recharge Time, in Hours							
	3.8	8.1	12.5	16.9	21.3	25.7	30.1	34.5
Calculations based on loads with a .75 power factor. Lower power factor loads will yield higher run times. Run times are typical at 25° C (77° F). Recharge times to 90% of rated capacity after discharge into 50% of rated load.								

Typical On-Battery Run Time Versus Load, 5000 VA Matrix-UPS with SmartCells, in Hours								
	Number of SmartCells							
Computer Load (VA)	2	3	4	5	6	7	8	
500	3.07	5.02	7.20	9.38	11.56	13.75	15.93	
1000	1.46	2.46	3.52	4.58	5.80	7.02	8.24	
1500	0.83	1.46	2.11	2.81	3.52	4.23	4.99	
2000	0.57	0.99	1.46	1.93	2.46	2.99	3.52	
2500	0.46	0.78	1.18	1.59	1.99	2.45	2.90	
3000	0.36	0.62	0.92	1.25	1.59	1.92	2.30	
4000	0.24	0.42	0.62	0.83	1.08	1.33	1.59	
5000	0.17	0.31	0.46	0.62	0.78	0.98	1.18	
	Recharge Time, in Hours							
	2.8	2.7	3.8	4.9	6	7	8.1	
<p>The case of one SmartCell does not apply to 5000 VA Matrix-UPS. Calculations based on loads with a .75 power factor. Lower power factor loads will yield higher run times. Run times are typical at 25° C (77° F). Recharge times to 90% of rated capacity after discharge into 50% of rated load.</p>								

Typical On-Battery Run Time Versus Load, 5000 VA Matrix-UPS with SmartCell XR Battery Packs, in Hours									
	Number of SmartCell XR Battery Packs								
Computer Load (VA)	1	2	3	4	5	6	7	8	
1000	3	6.75	10.75	14.75	18.75	22.75	26.75	30.75	
1500	1.8	4.3	6.9	9.5	12.1	14.7	17.3	19.9	
2000	1.2	3	5	7	9	11	13	15	
2500	0.9	2.4	4	5.6	7.2	8.8	10.4	12	
3000	0.75	1.8	3.25	4.7	6.15	7.6	9.05	10.5	
4000	0.53	1.25	2.25	3.25	4.25	5.25	6.25	7.25	
5000	0.37	0.9	1.6	2.4	3.2	4	4.8	5.6	
	Recharge Time, in Hours								
	3.8	8.1	12.5	16.9	21.3	25.7	30.1	34.5	
<p>Calculations based on loads with a .75 power factor. Lower power factor loads will yield higher run times. Run times are typical at 25° C (77° F). Recharge times to 90% of rated capacity after discharge into 50% of rated load.</p>									