



Advanced Power Systems

# Midi/Maxi

THE ANSWER TO ALL YOUR POWER NEEDS



# Midi/Maxi

The Answer To All Your Power Needs.



## THE COMPANY

► When the quality of a Company is matched by the quality of its products.

Food, as everyone knows, is essential to all living organisms, and a correct diet prolongs life, maintaining our bodies in perfect working order. The same concept can be applied to electrical equipment.

The more complex technology becomes, the more problematic the "food", in case the power supply, which requires serious thought on the part of the designer alongside development of the project as a whole.

AdPoS, relying on its know-how acquired in nineteen years of experience in the power supply sector, has offered products for application in both the computer and industrial sectors. The Company's driving force is the

influence of R&D departments equipped with advanced instrumentation run by a group of skilled motivated and creative technicians guided by a marketing management that focuses closely on customer requirements, in particular those of designers and electrical system engineers.

Combining this know-how with the wide-scale industrialization of electronic cards designed for other products has proved to be a winning strategy from the point of view of both products development and product efficiency, achieving maximum quality levels.

The trade mark of AdPoS is therefore the ability to monitor market requirements from all points of view with the aim of proposing a unique range as regards completeness and technological innovation, becoming a reference point in the emergency power supply sector.

## GENERAL DESCRIPTION

**Midi/Maxi** is the ideal solution to protect from voltage aberrations and outages your sensitive equipment such as: small to large computer systems, telecommunication centres, electro-medical instruments, industrial processes, lighting systems, test and laboratory facilities, others.

The series **Midi/Maxi** provides many important characteristics:

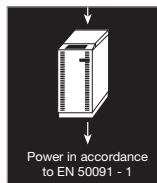
- On-line double conversion (UPS-CIB)
- High frequency IGBT single and 3-phase inverter (P.W.M.)
- Microprocessor (INTEL™) control
- By-pass static and manual for maintenance
- Complete self diagnosis of the system and telemaintenance
- Conformity to Standards EN50091-1 (Safety) and EN50091-2 (EMC) both included in the "CE" mark
- Full use of system for the continuous powering of non sinusoidal loads (such as computers), since they can accept loads with crest factor up to and greater than 3:1
- Programmed battery test
- Low noise level due to an intelligent fan control system

- Automatic back-feed protection
- Configuration as a frequency converter
- Galvanic isolation between mains and load during normal operation (power from inverter with mains present)
- Standard Interface RS232 and free voltage contacts
- ECO mode function for LESS SENSITIVE LOADS (LIGHTING) for 100 KVA and up
- Optional remote panel with same functions of that embedded in the UPS Standard internal software which automatically calls via modem, in case of failure, a Service Center
- Optional "POWER MONITORING SOFTWARE" working with the most known operating systems. The SNMP support is also provided.
- Optional input filters that reduce input harmonic distortion (THD) to 8%
- Parallel operation for redundancy or extended power with possibility of battery sharing to increase the system reliability
- Emergency Power Off (EPO) electronic circuit to switch off the UPS from remote in case of emergency

## How to get power supply quality

When you have to provide clean power for all your equipment, computers systems, telecommunication systems, electromedical systems, automatic control systems, lighting systems, you need an Uninterruptible Power Supply System (UPS). To make the right choice you will have to appraise the power in accordance with the electrotechnical standards and with the specific European Standards for UPS EN: 50091-1.

Be careful of inaccurate sizing calculated on the basis of values different from the specifications of the EN 50091-1 Standards, such as computer power, actual power or others.



## Advantages of the Midi/Maxi in parallel configuration

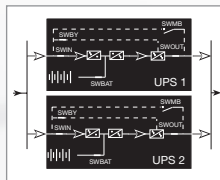
The power supply is safer if the UPS used can provide status report and self diagnostic interrogation. Microprocessor-controlled UPS give the best chance of complete warnings.

The **Midi/Maxi** microprocessor automatically performs every 24 hours a complete battery efficiency test so as to warn the user in advance of any irregularity in the battery and thus allow him to avoid unforeseen power failure when the mains fails.

Thanks to the microprocessor it is possible to transfer all operating data to a computer to perform further processing and thus prevent malfunction.

The **Midi/Maxi** microprocessor can also call automatically through modem/telephone a Service Centre to report any failure and/or specific alarm status.

To increase the reliability of the power supply, up to six **Midi/Maxi** can be connected in parallel for system redundancy and/or larger power ratings.

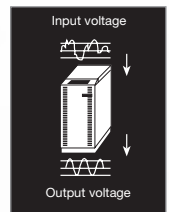


## Features associated with high quality power supply

The voltage supplied to the load should be:

- with a perfect sine wave
- with a value stabilised within  $\pm 1$
- with a frequency stabilised within  $\pm 1$
- filtered and free from peaks and high frequency mains interference.

All this comes with an ON-LINE DOUBLE CONVERSION UPS such as **Midi/Maxi**.



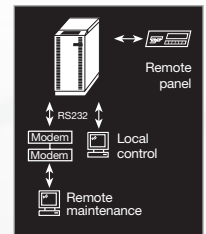
## Foolproof Solutions

The power supply is safer if the UPS used can provide status report and self diagnostic interrogation. Microprocessor-controlled UPS give the best chance of complete warnings.

The **Midi/Maxi** microprocessor automatically performs every 24 hours a complete battery efficiency test so as to warn the user in advance of any irregularity in the battery and thus allow him to avoid unforeseen power failure when the mains fails.

Thanks to the microprocessor it is possible to transfer all operating data to a computer to perform further processing and thus prevent malfunction. The **Midi/Maxi** microprocessor can also call automatically through modem/telephone a Service Centre to report any failure and/or specific alarm status.

To increase the reliability of the power supply, up to six **Midi/Maxi** can be connected in parallel for system redundancy and/or larger power ratings.



## Simplification of installation, use and maintenance

All the **Midi/Maxi** up to 20 kVA are available with built-in connected batteries and installed and put in service merely by connecting the input and output cables. They can also be installed among other equipment because they have front access to all internal parts.

Noise generated by the **Midi/Maxi** is negligible because it works with inaudible ultrasound frequencies. There is only a low humming of the fans turning at full speed only with high temperature and full load. All **Midi/Maxi** units have high efficiency so as minimising heat generated and energy consumption.



# Midi/Maxi

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## ► Three Phase Input · Single Phase Output

### TECHNICAL CHARACTERISTICS

SYSTEM	MIDI8	MIDI10	MIDI15	MIDI20
Total efficiency AC-AC	91%	92%	92%	92%
Nominal battery DC voltage	384V			
Operating altitude without derating	1000 mt a.s.l.			
Noise level db (A) at 1 meter depending on load and temperature	from 48 to 54	from 48 to 54	from 48 to 54	from 53 to 60
Operating ambient temperature	from 0° to a 40° C			
Humidity (non condensing)	95%			
Standards	SafetyEN 50091-1, Electromagnetic Compatibility (EMC) EN 50091-2 Lev. A			
Filters for input current harmonics reduction	optional			
Remote Signalling standard:	free voltage alarm contacts + auxiliary power supply			
Computer interface	standard: RS232/C			
Remote control standard:	Emergency Power Off (EPO), Inverter power off			
UPS weight without batteries	190 kg	200kg	220 kg	240 kg
Protection level	IP20			
Colour	RAL 7035			

INPUT	MIDI8	MIDI10	MIDI15	MIDI20
Three phase Voltage	400V ±20%			
Frequency	from 45 to 65 Hz			

BY-PASS LINE	MIDI8	MIDI10	MIDI15	MIDI20
Voltage (single phase)	230V±15% selectable ±10% ±25%			
By-pass	static + manual for maintenance			
Overload capacity for 1 min.	200%			
Transfer time	0 ms.			

OUTPUT	MIDI8	MIDI10	MIDI15	MIDI20
Nominal Power cos 0,8	8 KvA	10 kVA	15 kVA	20 kVA
Voltage (single phase)	230V, selectable from 200 to 244			
Voltage stability	±1% static, ±5% dynamic			
Waveform	sinusoidal with 2% THD (linear load)			
Frequency	50/60 Hz auto-sensing			
Frequency stability	±0.05% battery operation, ±2% (selectable ±1%) with synchronism from mains			
Crest Factor	3:1			
Accepted overload	125% for 10 min., 150% for 1 min.			

KVA	Type	Total Autonomy	Dimensions WxDxH	Weight kg	Batteries
8	MIDI8 00	0	555 × 720 × 1200	190	-
	MIDI8 A7	10	555 × 720 × 1200	287	32 × 7 Ah
	MIDI8 A12	20	555 × 720 × 1200	325	32 × 12 Ah
	MIDI8 A12+A7	35	555 × 720 × 1200	422	32 × 12 Ah + 32 × 7 Ah
	MIDI8 A12+A12	50	555 × 720 × 1200	460	32 × 12 Ah + 32 × 12 Ah
10	MIDI10 00	0	555 × 720 × 1200	200	-
	MIDI10 A7	6	555 × 720 × 1200	297	32 × 7 Ah
	MIDI10 A12	15	555 × 720 × 1200	335	32 × 12 Ah
	MIDI10 A12+A7	30	555 × 720 × 1200	432	32 × 12 Ah + 32 × 7 Ah
	MIDI10 A12+A12	40	555 × 720 × 1200	470	32 × 12 Ah + 32 × 12 Ah
15	MIDI15 00	0	555 × 720 × 1200	220	-
	MIDI15 A12	10	555 × 720 × 1200	355	32 × 12 Ah
	MIDI15 A12+A7	15	555 × 720 × 1200	439	32 × 12 Ah + 32 × 7 Ah
	MIDI15 A12+A12	20	555 × 720 × 1200	490	32 × 12 Ah + 32 × 12 Ah
20	MIDI20 00	0	555 × 720 × 1200	240	-
	MIDI20 A12+A7	10	555 × 720 × 1200	472	32 × 12 Ah + 32 × 7 Ah
	MIDI20 A12+A12	15	555 × 720 × 1200	579	32 × 12 Ah + 32 × 12 Ah

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## Autonomy Expansions With Additional Cabinets

KVA	Type	Total Autonomy	Dimensions WxDxH	Weight Kg	Batteries
10	Expansion A38	65	555 × 720 × 1200	563	32 × 38 Ah
15	Expansion A38	40	555 × 720 × 1200	563	32 × 38 Ah
15	Expansion A65	75	860 × 720 × 1200	875	32 × 65 Ah
20	Expansion A38	30	555 × 720 × 1200	563	32 × 38 Ah
20	Expansion A65	55	860 × 720 × 1200	875	32 × 65 Ah

Expansion cabinets for longer autonomies are available on request

## Special Configurations & Accessories

Code	Description
6IFARH01A	Remote control panel (for all models)
6ABA038V0A	Cabinet for 38Ah batteries H1200 W 555 mm, without batteries, with battery cables
6ABA065V0A	Cabinet for 65Ah batteries H1200 W 860 mm, without batteries, with battery cables

- Isolation transformers
- Shut down software for main operating systems
- Parallel Configurations
- UPS with input harmonic filters
- Frequency converter configuration

### UPS basic version

W = 555 mm



### Version with expansion cabinet A38

W = 555 + 555 mm



### Version with expansion cabinet A65

W = 555 + 860 mm



## ► Three Phase Input · Three Phase Output

### TECHNICAL CHARACTERISTICS

SYSTEM	MAXI10	MAXI15	MAXI20	MAXI30	MAXI40
Total efficiency AC-AC	90%	90%	91%	91%	92%
Nominal battery DC voltage	384V				
Operating altitude without derating	1000 mt a.s.l.				
Noise level db (A) at 1 meter depending on load and temperature	from 48 to 54	from 48 to 54	from 48 to 54	from 48 to 54	from 53 to 60
Operating ambient Temperature	from 0° to 40° C				
Humidity (without condensing)	95%				
Standards	Safety EN 50091-1, Electromagnetic Compatibility (EMC) EN 50091-2 Lev.A				
Filters for input current harmonic reduction	optional				
Remote signalling	standard: free voltage alarm contacts + auxiliary power supply				
Computer interface	standard: RS232/C				
Remote control	standard: Emergency Power Off (EPO), Inverter power off				
UPS weight without batteries	210 kg	220 kg	240 kg	282 kg	330 kg
Protection	IP20				
Colour	RAL 7035				

INPUT	MAXI10	MAXI15	MAXI20	MAXI30	MAXI40
Three phase Voltage	400V ±20%				
Frequency	from 45 to 65 Hz				

BYPASS LINE	MAXI10	MAXI15	MAXI20	MAXI30	MAXI40
Three phase Voltage	400V + N ±15% selectable ±10% ±25%				
By-pass for maintenance	static + manual for maintenance				
Overload capacity for 1 min.	200%				
Transfer time	0 ms.				

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OUTPUT	MAXI10	MAXI15	MAXI20	MAXI30	MAXI40
Nominal Power cos 0,8			40 kVA		
Three phase Voltage			400 V+N selectable 380/415		
Voltage stability			±1% static, ±5% dynamic		
Waveform			sinusoidal with 2% THD (linear load)		
Frequency			50/60 Hz auto-sensing		
Frequency stability		±0.05% battery operation, ±2% (selectable ±1%)			with synchronism from mains
Crest Factor			3:1		
Accepted overload			125% for 10 min., 150% for 1 min.		

KVA	Type	Total Autonomy	Dimensions WxDxH	Weight Kg	Batteries
10	MAXI10 00	0	555 × 720 × 1200	210	-
	MAXI10 A7	6	555 × 720 × 1200	300	32 × 7 Ah
	MAXI10 A12	15	555 × 720 × 1200	345	32 × 12 Ah
	MAXI10 A12+A7	30	555 × 720 × 1200	422	32 × 12 Ah + 32 x7 Ah
	MAXI10 A12+A12	40	555 × 720 × 1200	480	32 × 12 Ah + 32 x12 Ah
15	MAXI15 00	0	555 × 720 × 1200	220	-
	MAXI15 A12	10	555 × 720 × 1200	355	32 × 12 Ah
	MAXI15 A12+A7	15	555 × 720 × 1200	452	32 × 12 Ah + 32 × 7 Ah
	MAXI15 A12+A12	20	555 × 720 × 1200	490	32 × 12 Ah + 32 x12 Ah
20	MAXI20 00	0	555 × 720 × 1200	240	-
	MAXI20 A12+A7	10	555 × 720 × 1200	472	32 × 12 Ah + 32 × 7 Ah
	MAXI20 A12+A12	15	555 × 720 × 1200	510	32 × 12 Ah + 32 x12 Ah
30	MAXI30 00	0	555 × 720 × 1200	282	-
	MAXI30 A12+A12	8	825 × 720 × 1200	552	32 × 12 Ah + 32 x12 Ah
40	MAXI40 00	0	555 × 720 × 1200	330	-

## AUTONOMY EXPANSIONS WITH ADDITIONAL CABINETS

KVA	Type	Total Autonomy	Dimensions WxDxH	Weight Kg	Batteries
10	Expansion A38	65	555 × 720 × 1200	563	32 × 38 Ah
15	Expansion A38	40	555 × 720 × 1200	563	32 × 38 Ah
15	Expansion A65	75	860 × 720 × 1200	875	32 × 65 Ah
20	Expansion A38	30	555 × 720 × 1200	563	32 × 38 Ah
20	Expansion A65	55	860 × 720 × 1200	875	32 × 65 Ah
30	Expansion A38	15	860 × 720 × 1200	563	32 × 38 Ah
30	Expansion A65	32	860 × 720 × 1200	875	32 × 65 Ah
30	Combination: 2 × A38	40			32 × 38 Ah + 32 × 38 Ah
30	Combination: A65 +A38	60			32 × 38 Ah + 32 × 65 Ah
40	Expansion A38	10	555 × 720 × 1200	563	32 × 38 Ah
40	Expansion A65	25	860 × 720 × 1200	875	32 × 65 Ah
40	Combination: 2 × A38	30			32 × 38 Ah + 32 × 38 Ah
40	Combination: A65 +A65	55			32 × 65 Ah + 32 × 65 Ah

Expansion cabinets for longer autonomies are available on request

## Special Configurations & Accessories

Code	Description
6IFARH01A	Remote control panel (for all models)
6ABA038VOA	Cabinet for 38Ah batteries H1200 W 555 mm, without batteries, with battery cables
6ABA065VOA	Cabinet for 65Ah batteries H1200 W 860 mm, without batteries, with battery cables
<ul style="list-style-type: none"> <li>Isolation transformers</li> <li>UPS with input harmonic filters</li> <li>Parallel Configurations</li> <li>Shut down software for main operating systems</li> <li>Frequency converter configuration</li> </ul>	

### UPS basic version

W = 555 mm



### Version with expansion cabinet

W = 825 mm



### Version with expansion cabinet A38

W = 555 + 555 mm



### Version with expansion cabinet A65

W = 555 + 860 mm



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## ► Three Phase Input · Three Phase Output

### TECHNICAL CHARACTERISTICS

SYSTEM	MAXI60	MAXI80	MAXI100	MAXI120	MAXI160	MAXI200
Total efficiency AC-AC	93%	93%	93% on line 98% Eco mode	93% on line 98% Eco mode	93% on line 98% Eco mode	93% on line 98% Eco mode
Nominal battery DC voltage	384V	384V	432V	480V	480V	480V
Operating altitude without derating	1000 mt a.s.l.					
Noise level db (A) at 1 meter depending on load and temperature	from 53 to 62	from 53 to 62	from 60 to 65	from 60 to 65	from 60 to 65	from 60 to 65
Operating ambient temperature	from 0° to 40°C					
Humidity (without condensing)	95%					
Standards	Safety EN 50091-1, Electromagnetic Compatibility (EMC) EN 50091-2 Lev.A					
Filters for input current harmonics reduction	optional					
Remote signalling	standard: free voltage alarm contacts + auxiliary power supply					
Computer interface	standard: RS232/C					
Remote control	standard: Emergency Power Off (EPO), Inverter power off					
UPS weight without batteries	450 kg	555 kg	650 kg	750 kg	900 kg	1300 kg
Protection level	IP20					
Colour	RAL 7035					

INPUT	MAXI60	MAXI80	MAXI100	MAXI120	MAXI160	MAXI200
Three phase Voltage	400V ±20%					
Frequency	from 45 to 65 Hz					

BYPASS LINE	MAXI60	MAXI80	MAXI100	MAXI120	MAXI160	MAXI200
Three phase Voltage	400V + N ±15% (selectable ±5% ±25%)					
By-pass	static + manual for maintenance					
Overload capacity for 1 min.	200%					
Transfer time	0 ms.					

OUTPUT	MAXI60	MAXI80	MAXI100	MAXI120	MAXI160	MAXI200
Nominal Power cos 0,8	60 kVA	80 kVA	100 kVA	120 kVA	160 kVA	200 kVA
Three phase Voltage	400 V+N selectable 380/415					
Voltage stability	±1% static ±5% dynamic					
Waveform	sinusoidal with 2% THD (linear load)					
Frequency	50/60 Hz					
Frequency stability	±0.05% battery operation, ±2% (selectable ±1%) with synchronism from mains					
Crest Factor	3:1					
Accepted overload	125% for 10 min., 150% for 1 min.					

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KVA	Type	Total Autonomy	Dimensions WxDxH	Weight Kg	Batteries
60	MAXI60 00	0	800 × 740 × 1400	450	-
80	MAXI80 00	0	800 × 740 × 1400	555	-
100	MAXI100 00	0	1070 × 740 × 1400	650	-
120	MAXI120 00	0	1070 × 740 × 1400	750	-
160	MAXI160 00	0	1070 × 740 × 1400	900	-
200	MAXI200 00	0	1420 × 740 × 1800	1300	-

AUTONOMY EXPANSIONS WITH ADDITIONAL CABINETS					
KVA	Type	Total Autonomy	Dimensions WxDxH	Weight Kg	Batteries
60	Expansion A38	6	555 × 740 × 1400	578	32 × 38 Ah
60	Expansion A65	12	860 × 740 × 1400	890	32 × 65 Ah
60	Expansion A88	18	860 × 740 × 1400	1100	32 × 88 Ah
60	Expansion A100	22	860 × 740 × 1400	1200	32 × 100 Ah
60	Combination 2XA65	36			32 × 65 Ah + 32 × 65Ah
80	Expansion A65	8	860 × 740 × 1400	890	32 × 65 Ah
80	Expansion A88	12	860 × 740 × 1400	1100	32 × 88 Ah
80	Expansion A100	14	860 × 740 × 1400	1200	32 × 100 Ah
80	Combination 2XA65	24			32 × 65 Ah + 32 × 65Ah
100	Expansion A65	7	860 × 740 × 1800	1100	36 × 65 Ah
100	Expansion A88	11	860 × 740 × 1800	1300	36 × 88 Ah
100	Expansion A100	13	860 × 740 × 1800	1400	36 × 100 Ah
120	Expansion A65	6	860 × 740 × 1800	1300	40 × 65 Ah
120	Expansion A88	10	860 × 740 × 1800	1500	40 × 88 Ah
120	Expansion A100	12	860 × 740 × 1800	1600	40 × 100 Ah

Expansion cabinets for longer autonomies are available on request

Special Configurations & Accessories	
Code	Description
6IFARH01A	Remote control panel (for all models)
6ABA038V1A	Cabinet for 38Ah batteries H1400 W 555 mm, without batteries, with leads
6ABA065V1A	Cabinet for 65Ah batteries H1400 W 860 mm, without batteries, with leads
6ABA100V1A	Cabinet for max 32 batteries 100 Ah H1400 W 860 mm, without batteries, with leads
6ABA100V240A	Cabinet for max 40 × 100Ah batteries H1800 W 860 mm, without batteries, with leads
<ul style="list-style-type: none"> <li>Isolation transformers</li> <li>Shut down software for main operating systems</li> <li>Parallel Configurations</li> <li>UPS with input harmonic filters</li> <li>Frequency converter configuration</li> </ul>	

<b>UPS basic version</b> W = 800 mm (60 – 80 KWA) W = 1070 mm (100 KWA and up)	
<b>Version 60 – 80 kVA with expansion A65/A88/A100</b> mm 1660 × 740 × 1400	
<b>Version UPS 120 kVA and up with expansion A65/A88/A100</b> mm 1930 × 740 × 1800	