AP160N

1-10 kVA Singlephase

- DATACENTER & SERVERS
- INTERNET CENTERS, LAN
- MEDICAL DEVICES
- TELECOMMUNICATION DEVICES
- INDUSTRIAL APPLICATION

GTEC
Quality Energy Provider

Smart Energy
Solutions

Main features

- **COMPACT SOLUTION**
- **LOWER POWER AUTO-CONSUMPTION**
- **EXTENDABLE AUTONOMY**
- **EXCELLENT RELIABILITY**
- **HIGH POWER DENSITY**
- **FLEXIBILE SETTINGS**

The high power density and the excellent reliability are the main features of **APN160N**, making it the perfect solution for critical loads, such as servers or IT networks.

EXCELLENT RELIABILITY

- DSP (Digital Signal Processor) microprocessor controlling
- Rotary display with easy access
- Self-status monitoring and faults diagnosis

HIGH POWER DENSITY

- Wide input voltage range
- 0.9 load PF increasing power availability
- Input power factor correction for the lowest current distortion

FLEXIBLE SETTINGS

- Selectable configuration via LCD: Online, Eco Mode and frequency converter mode
- EPO connector for emergency power off

COMPACT SOLUTION

- Higher power performance in slim shape for 19" rack space
- Internal batteries easy replacement
- Connector for additional battery packs connection

LOWER POWER AUTO-CONSUMPTION

- High efficiency
- Eco Mode operation available for efficiency up to 97%
- Low heating dissipation

EXTENDABLE AUTONOMY

- Systems are available with super charger for extended autonomy
- Dedicated battery packs for external batteries

LCD DISPLAY

Menu

1. UPS status
2. Battery capacity
3. Load level
4. Input/output voltage
5. Input/output frequency
6. Faults/warnings
7. Setting mode

1kVA to 3kVA

FLEXIBLE SETTINGS

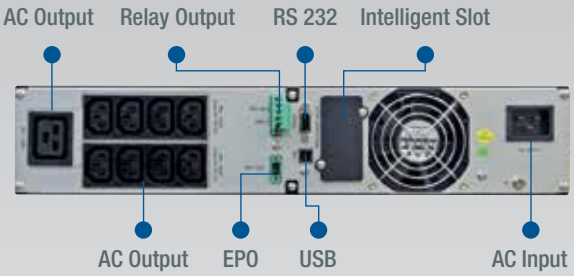
- AC Output programmable management
- Configurable dry contact, available as standard
- Optional KS version* with increased battery charger, and no internal batteries, for longer autonomy

COMPACT SOLUTION

- 2U height with internal batteries up to 3kVA

LOWER POWER AUTO-CONSUMPTION

- High efficiency up to 90%



6kVA

FLEXIBLE SETTINGS

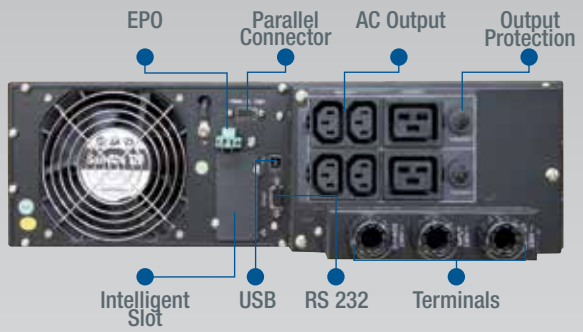
- Redundant parallel 1+1 configuration
- Optional KS version* with increased battery charger, and no internal batteries, for longer autonomy
- Optional hot swappable PDU* with mechanical maintenance switch, that allows to remove the UPS without loads switch off

COMPACT SOLUTION

- Just 3U height for 19” rack space with internal batteries
- Dual input, with separated bypass

LOWER POWER AUTO-CONSUMPTION

- High efficiency greater than 93%



10kVA

FLEXIBLE SETTINGS

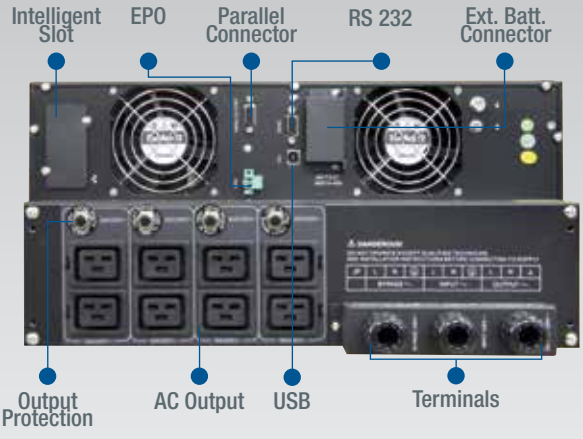
- Redundant parallel 1+1 configuration
- Optional KS version* with increased battery charger, and no internal batteries, for longer autonomy
- Optional hot swappable PDU* with mechanical maintenance switch, that allows to remove the UPS without loads switch off

COMPACT SOLUTION

- Just 5U height for 19” rack space with internal batteries
- Dual input, with separated bypass

LOWER POWER AUTO-CONSUMPTION

- High efficiency greater than 93%



* Optional hot swappable PDU and/or optional KS version excludes Parallel feature

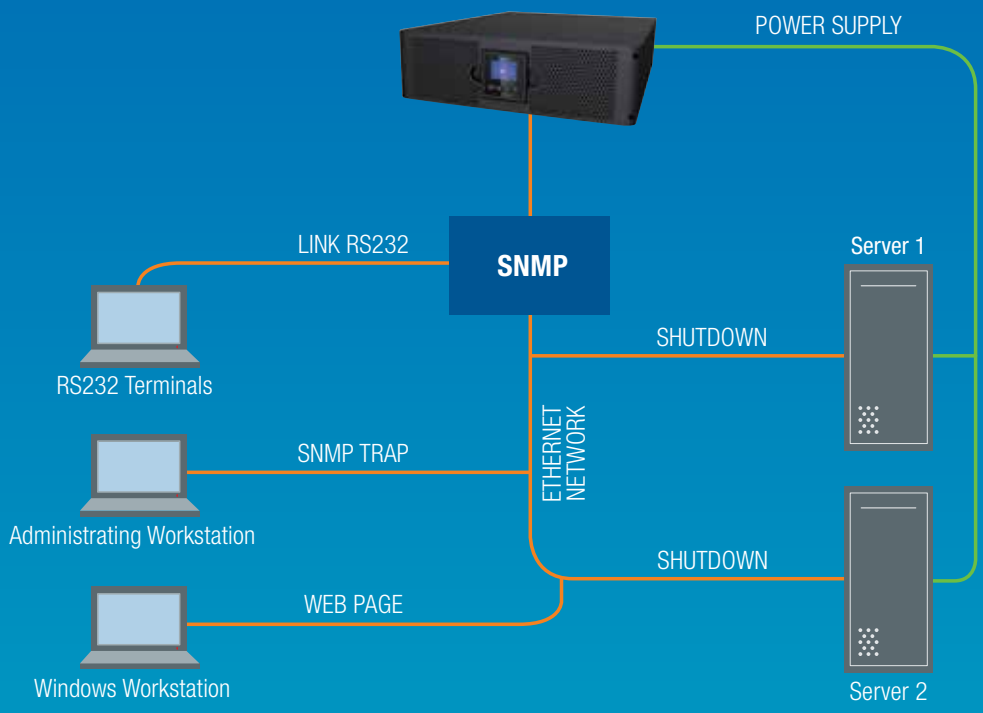
Communication solutions

WinPower CD is included with UPS, and it can also be downloaded from Internet.
The software is able to:

- Remotely monitor and control UPS
- Send alarm signals to the mobile phone
- Perform automatic shutdown of PC / server
- Schedule UPS self-test programs

WinPower provides complete protection to your system during power failure.
The software supports most of the operating systems including Windows, Linux, Sun Solaris, FreeBSD, IBM Aix, and HP-UX.
Also MacOS version is now available, simply downloadable from Internet.

Direct connection with ethernet network



Interface options

AS 400N CARD
RELAY CARD

MODBUS INTERFACE

SNMP CARD

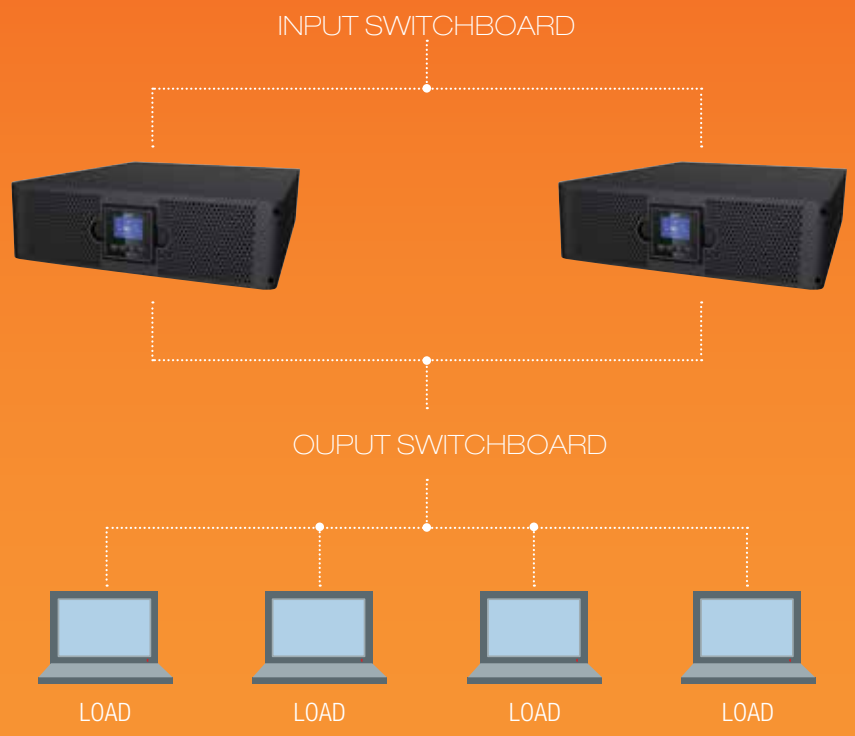
- Power flow display for UPS status monitoring
- Scheduled system shutdown/restart
- Scheduled UPS tests
- Warnings notification via Email/Pager
- Warnings notification via Broadcast
- Security password protection
- Remote Monitoring/Control via LAN
- Multi-language versions: English, German, French, Italian, Spanish, Portuguese, Polish, Turkish, Russian, Chinese, Japanese and Thai
- Selectable user interface
- UPS parameters setting
- Recorded logs analysis
- The SNTP card allows UPS management across LAN using the main TCP/IP network communication protocols

Parallel configuration

AP160N allows system flexibilty thanks to the parallel configuration option, up to two UPS units, for 6 kVA and 10 kVA models.

Redundancy proves to be a very economical solution to achieve system growth, both in terms of supported power and autonomy.

The parallel configuration equally splits the load between the two units, providing a higher level of continuity to your application.



Key strengths

There are may significant key strengths in AP160N series, which represents the technological state of the art in the single-phase UPS category.

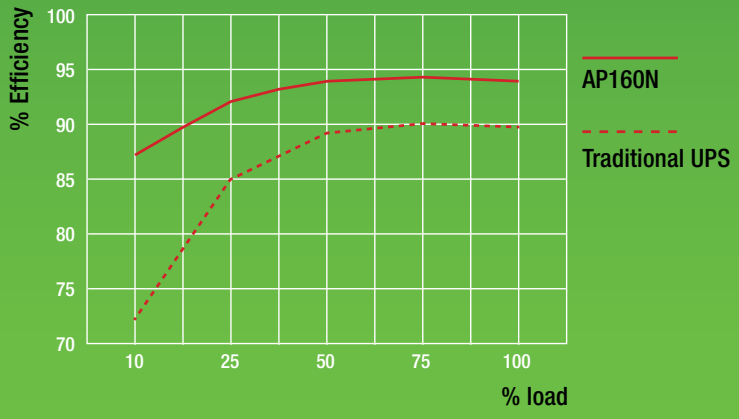
- Highest efficiency level for its category, even for reduced percentage of load, thanks to the 3-level inverter IGBT technology.
- Extremely flexible use due to convertible rack/tower design and different operation modes available: Online, Eco Mode, voltage and/or frequency converter.
- Top power density in its category due to reduced dimensions and Output cosφ 0,9.
- Zero impact on the mains thanks to the PFC input which ensures THDi <5% and PF> 0.99.
- Internal battery box easily removable thanks to the frontal access panel.
- Complete and ready to use solution, with small size: the UPS standard configuration has already on board installed batteries.
- Possibility to extend autonomy even for several hours with the series AP160N-KS, which is provided with reinforced charger.
- Possibility to have manual bypass mounted and parallel configuration for 6 kVA and 10 kVA models.

Green technology

ENERGY SAVING

The high efficiency of AP160N series is also evident for reduced percentages of applied load. The high efficiency level is due to the 3-level IGBT inverter, which represents the state of art for the category.

The extreme flexibility of use and superior performance, even at reduced load percentage, allows faster return of investment compared to the majority of UPS in the market.



Technical specifications

Model	APN1K	APN1K-KS*	APN2K	APN2K-KS*	APN3K	APN3K-KS*	APN6K	APN6K-KS*	APN10K	APN10K-KS*
Nominal power	1000VA		2000VA		3000VA		6000VA		10000VA	
Active power	900W		1800W		2700W		5400W		9000W	
MAIN INPUT										
Grid system	1 Phase + Neutral + Ground									
Rated voltage / Frequency	220/230/240VAC (Phase-Neutral), 50/60Hz									
Voltage range	176~276VAC ±3% full load 120~276VAC ±3% at 50% load									
Frequency range	50/60Hz±10%									
Power factor	>0.99									
Current THDi	≤5%									
BYPASS INPUT										
Grid system	1 Phase + Neutral + Ground									
Rated voltage / Frequency	208/220/230/240VAC (Phase-Neutral), 50/60Hz									
Voltage range	184~264VAC (default) 120~276VAC (maximum range selectable)									
Frequency range	50/60Hz ±10%									
Bypass overload	load<130%, long term operation 130%<load<180%, 1 minute									
OUTPUT										
Rated voltage / Frequency	208**/220/230/240VAC, 50/60Hz									
Power factor	0.9									
Voltage THDv	≤2% (from 0% to 100% linear load); ≤5% (full non-linear load according to IEC/EN62040-3)									
Voltage precision	±1% (0-100% linear load)									
Transient response	±9% for step load (0-100%; 100-0%) ±6% for step load (20-100%; 100-20%)									
Transient recovery	100ms for step load (0-100%; 100-0%)									
Inverter overload	102<load<130%, 12 seconds >130%, transfer to Bypass						102<load<130%, 2 minutes 130<load<150%, 30 seconds >150%, 100ms			
Output waveform	Perfect sine wave									
Frequency regulation	50/60Hz±0.2%									
Crest factor	3:1									
BATTERIES										
Battery rate voltage	36VDC		48VDC		72VDC		180VDC		240VDC	
Number of batteries	3*12V/7.2Ah	External	4*12V/9Ah	External	6*12V/9Ah	External	15*12V/5Ah	External	20*12V/9Ah	External
Autonomy (at nominal load)	>3 minutes		>3 minutes		>2.5 minutes		>3 minutes		>3.5 minutes	
Autonomy (at 70% load)	8 minutes		6.5 minutes		7 minutes		6.5 minutes		7 minutes	
Recharge time (at nominal load)	3 hours (90%)		3 hours (90%)		3 hours (90%)		3 hours (90%)		3 hours (90%)	
Battery type	Pb									
SISTEMA										
Efficiency - Normal Mode	>87%		>89%		>90%		>93%			
Efficiency - Eco Mode	>95%						>96%		>97%	
Efficiency - Battery Mode	>83%				>86%		>89%		>90%	
Display	LED + LCD									
Protection degree	IP20									
Interface	Standard equipment: RS232, USB Optional: SNMP, AS400N card, MODBUS									
ENVIRONMENT										
Operating temperature	0 ~ 40°C									
Storage temperature	0 ~ 45°C									
Relative humidity	0 ~ 95% (no condensing)									
Noise (dBA)	45dB maximum		50dB maximum				55dB maximum			
Altitude	<1000m									
MECHANICAL DATA										
Dimensions W*D*H (mm)	438*435*2U				438*608*2U ***		438*737*3U	438*676*3U	438*737*5U	438*676*5U
Weight (Kg)	15.3	9.1	30.5	12.3	33.2	13.5	46.5	18.0	82.5	32.5
Compliance	EN61000-4. EN62040-1, IEC62040-2, IEC62040-3, IEC60950-1, IEC62040-1, ETS300019-2-2 ****									

AP160N is also available in Made in Italy version, upon request (AP160NT-1K, AP160NT-1K-KS, AP160NT-2K, AP160NT-2K-KS, AP160NT-3K, AP160NT-3K-KS, AP160NT-6K, AP160NT-6K-KS, AP160NT-10K and AP160NT-10K-KS, depending on power size and batteries disposal).

* KS means UPS with battery extra-charger and without internal batteries

** derate to 90% with 208VAC output voltage

*** It is recommended to refer to the product manual and regulations for installation on the site

**** Including 35 mm front panel

Note: product specifications are subject to change without further notice

Battery extensions

Model	VDC	Voltage (V) and capacity (Ah)	Number of batteries	Additional time in minutes		Dimensions	Mass
				Typical	Full load		
Battery Cabinet (BC) for AP160N-1K							
AP160N-BP1K			Empty			438*435*86.5 mm(2U)	7.5 kg
AP160N-BP1K-037	36	12V/7Ah	3	15	11	438*435*86.5 mm(2U)	14.5 kg
AP160N-BP1K-039	36	12V/9Ah	3	20	14	438*435*86.5 mm(2U)	15.5 kg
AP160N-BP1K-067	36	12V/7Ah	6	31	22	438*435*86.5 mm(2U)	21.5 kg
AP160N-BP1K-069	36	12V/9Ah	6	40	28	438*435*86.5 mm(2U)	22.5 kg
Battery Cabinet (BC) for AP160N-2K							
AP160N-BP2K			Empty			438*435*86.5 mm(2U)	7.8 kg
AP160N-BP2K-047	48	12V/7Ah	4	10	6	438*435*86.5 mm(2U)	17 kg
AP160N-BP2K-049	48	12V/9Ah	4	13	9	438*435*86.5 mm(2U)	18 kg
AP160N-BP2K-087	48	12V/7Ah	8	21	14	438*435*86.5 mm(2U)	26.5 kg
AP160N-BP2K-089	48	12V/9Ah	8	27	18	438*435*86.5 mm(2U)	28 kg
Battery Cabinet (BC) for AP160N-3K							
AP160N-BP3K			Empty			438*608*86.5 mm(2U)	8.5 kg
AP160N-BP3K-067	72	12V/7Ah	6	11	7	438*608*86.5 mm(2U)	22.5 kg
AP160N-BP3K-069	72	12V/9Ah	6	14	9	438*608*86.5 mm(2U)	23.5 kg
AP160N-BP3K-127	72	12V/7Ah	12	22	15	438*608*86.5 mm(2U)	36 kg
AP160N-BP3K-129	72	12V/9Ah	12	28	19	438*608*86.5 mm(2U)	38.5 kg
Battery Cabinet (BC) for AP160N-6K							
AP160N-BP6K			Empty			438*590*132 mm(3U)	12 kg
AP160N-BP6K-157	180	12V/7Ah	15	13	10	438*590*132 mm(3U)	47 kg
AP160N-BP6K-159	180	12V/9Ah	15	17	13	438*590*132 mm(3U)	50 kg
Battery Cabinet (BC) for AP160N-10K							
AP160N-BP10K			Empty			438*620*132 mm(3U)	12 kg
AP160N-BP10K-207	240	12V/7Ah	20	11	7	438*620*132 mm(3U)	58 kg
AP160N-BP10K-209	240	12V/9Ah	20	14	9	438*620*132 mm(3U)	62 kg

Battery cabinets for AP160N are also available in Made in Italy version, upon request (AP160NT-BP1K, AP160NT-BP2K, AP160NT-BP3K, AP160NT-BP6K and AP160NT-BP10K, depending on power size).

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