

NP UPS

20kVA ~ 500kVA

True on-line double conversion design
Fully digitized microprocessor control
Digital Signal Processor Technology (DSP)
Input Power Factor Correction with less than 3% THDi
N+1 Parallel redundancy configuration
Up to 8 NP units connected in parallel
Hot-standby capability
Pure sinewave output with less than 2% THD
Wide input voltage range
100% unbalanced load suitability
IGBT inverter design
Multi-CPU digital control
Modular design for easy maintenance
Space-saving compact size
Cold Start function (DC power on)*
Galvanic isolation transformer
Generator compatible
Manual and Static bypass switch
Fan speed auto-control when load varies
Local and remote Emergency Power Off function (EPO)
Advanced Battery Management (ABM)
Intelligent battery charger
Battery Temperature Sensor *
Operation with Common battery
Multi-function and multi-language LCD display
Built-in memory module to hold up to 500 event logs
Remote control panel *
RS-232, RS-485, or dry contact communication port
SNMP management capability *
Software monitoring & control

* For optional features



PCE[®]
UPS SYSTEMS

**YOUR ULTIMATE
POWER PROTECTION PARTNER**

Product Introduction

The NP UPS is designed to provide the ultimate performance in power protection and redundancy. All of its features are geared towards providing a truly redundant system suitable for your most critical applications. The NP UPS boasts high flexibility, making it well-suited for customized solutions that have stringent requirements related to power output, battery back up time, load sharing, true redundancy, or harmonic control. The NP UPS utilizes state-of-the-art power protection innovations, such as galvanic isolation transformer, to provide the highest power quality. It is also equipped with an IGBT rectifier reducing the THDi to less than 3%.

Features at a Glance

- Parallel Redundancy (up to 8 units) to maximize reliability and flexibility
- Smallest overall size and footprint to save floor space
- Modular design for easy maintenance
- Multi-CPU digital control to minimize electronic components
- Redundant auxiliary power and redundant static switch control circuit
- Intelligent multi-speed cooling fan control
- Built-in SRAM that stores up to 500 historical records and event logs
- Multi-Language and user-friendly graphic LCD screen
- Programmable status dry contact and RS-232 & RS-485 communication ports
- 100% unbalanced load suitability
- Intelligent charger design to prolong battery lifetime
- Local and remote Emergency Power Off (EPO) function
- Common battery and Hot-Standby functions

Outstanding Power Range

The NP Series power output ranges from 20kVA up to 500kVA with the ability to reach 4000kVA when connecting eight units in parallel. This large power output is provided with the highest quality possible. Furthermore, the NP UPS is compatible with a wide range of battery autonomies enabling it to provide long back up times whenever necessary.



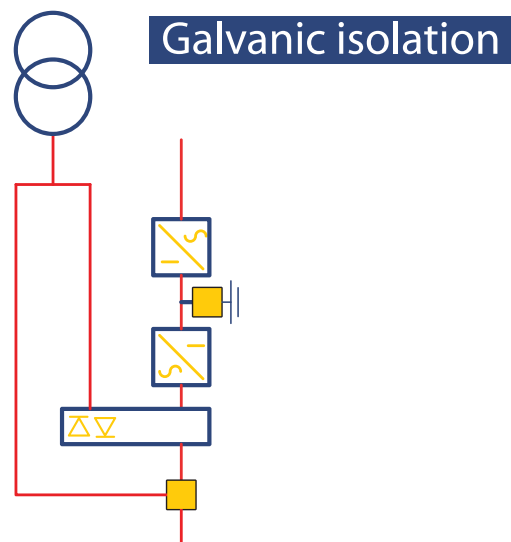
NP Series from 20 to 500kVA

Leading Technology

PCE UPS SYSTEMS Inc. has designed the NP UPS so that it would be equipped with the latest innovations in Uninterruptible Power Supply technology. Several features have gone into the design to ensure that the NP UPS is capable of being a central cornerstone in any high quality power protection solution:

PCE UPS SYSTEMS Inc. employs a patented Vector Control Technology to increase the performance of power components and enable active conditioning of the load. The following benefits are realized using the Vector Control Technology:

- Using an IGBT rectifier, the NP can provide a superior Power Factor Correction PFC with less than 3% THDi
- Improved performance for specific unbalanced load conditions
- Perfect load distribution among different NP units connected in parallel
- Improved fault clearing capacity for downstream short circuits
- Customization easily achieved via simple software modifications
- Improved efficiency through easy installation times and reduced servicing
- The pure sinewave output that the NP delivers makes it perfect for powering highly sensitive equipment operating in environments where power supply quality is not reliable
- The Galvanic Isolation Transformer may be used in situations where you increase the quality of your power output even more. This transformer ensures complete galvanic isolation of your power supply from the loads



Digital signal processor Technology

NP adopts DSP technology which gives redundant operation and the highest possible operating reliability for the most mission critical applications. With the use of the digital signal processor (DSP), the realization of very complex control structures with flexible adapting mechanisms is possible. The DSP implementations facilitate design benefits, including increased power efficiency and power density smaller product footprint with less weight.

Modular design

NP is a modular design UPS. There are many small modular boards on the power board. They are fan module, charger module, power supply module, inverter module. The modular design would help easily to maintain and repair the UPS and the product quality will be more reliable. The modules can be hot-swapped and enabled true continuity of power to the load without any interruption of service.

Control Panel

NP UPS is equipped with control panel which provides a diagram of the power flow, indications of the status of the UPS, measurements, and alarm messages. It is a microprocessor controlled panel with alphanumeric LCD display and mimic diagram with LEDs indicators.

Reliability

The NP UPS uses an Intelligent Double Conversion technology for its operation. This architecture combines the secure power provided by double conversion with efficiency provided by digital interactive technology.

Redundancy

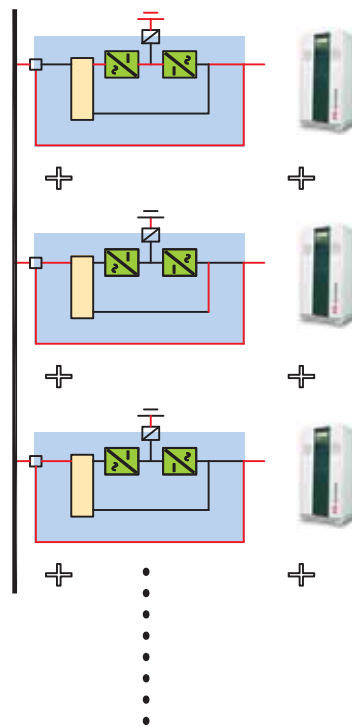
The NP UPS is capable of acting in a parallel configuration which is ideal for redundancy and load sharing, while maintaining high utilization efficiency at the same time.

Up to eight NP UPS units may be connected in parallel using a simple procedure that does not require any additional hardware.

When connected together, the NP units automatically detect the presence of their neighbors and coordinate load sharing and protection accordingly. This simple upgrade setup enables you to easily modify your existing solution whenever your load requirements change.

The NP Series power systems can operate in the following redundant configurations:

- Distributed Parallel: increases power and redundancy of the supply system whilst controlling costs.
- Hot-StandBy: increases redundancy by reducing the probability of power supply being cut off and improves the quality of output power.



Parallel configuration with up to 8 NP units

Power Saving

The NP UPS operates with an efficiency higher than 98%, which translates into immediate savings in your power usage. In addition, the NP UPS is capable of operating under an "Economy Mode".

This mode enables the NP UPS to preserve battery power in times when non-critical applications are running. The NP UPS intelligently switches input to the inverter if it detects any power disturbance.

Simple Power Upgrade

The ability of the NP UPS to operate in parallel configurations makes the upgrade of your power infrastructure a simple procedure.

This feature makes your investment in the NP UPS "future-proof" since you do not need to drastically replace your power infrastructure already installed every time your power consumption needs increase.

The NP units have an intelligent microprocessor controller which automatically detects the presence of nearby units the moment they are plugged in together.

The intelligent controllers of all connected NP units then collaborate in providing redundancy and sharing the load without requiring any user intervention.

Secure Power At All Times

Supplying you with a UPS alone will never deliver the level of business continuity you require.

PCE UPS SYSTEMS Inc. bundles its superior products with a range of maintenance plans designed to:

- Extend the life of your power protection equipment
- Provide a proactive approach to disaster recovery
- Ensure the reliability of power to your load
- Optimize your capital expenditure
- Provide risk management at a fixed cost

Flexibility for Custom Solutions

The NP UPS can be fully adapted to meet the diverse needs of your specific power solution, whether it is battery back up time, power, redundancy or harmonic control.

The NP UPS can be fully integrated with PCE's static switch assembly.

This integration provides extra protection against additional problems in the power distribution system by immediately switching to reserve in the event of a fault.

Other options include:

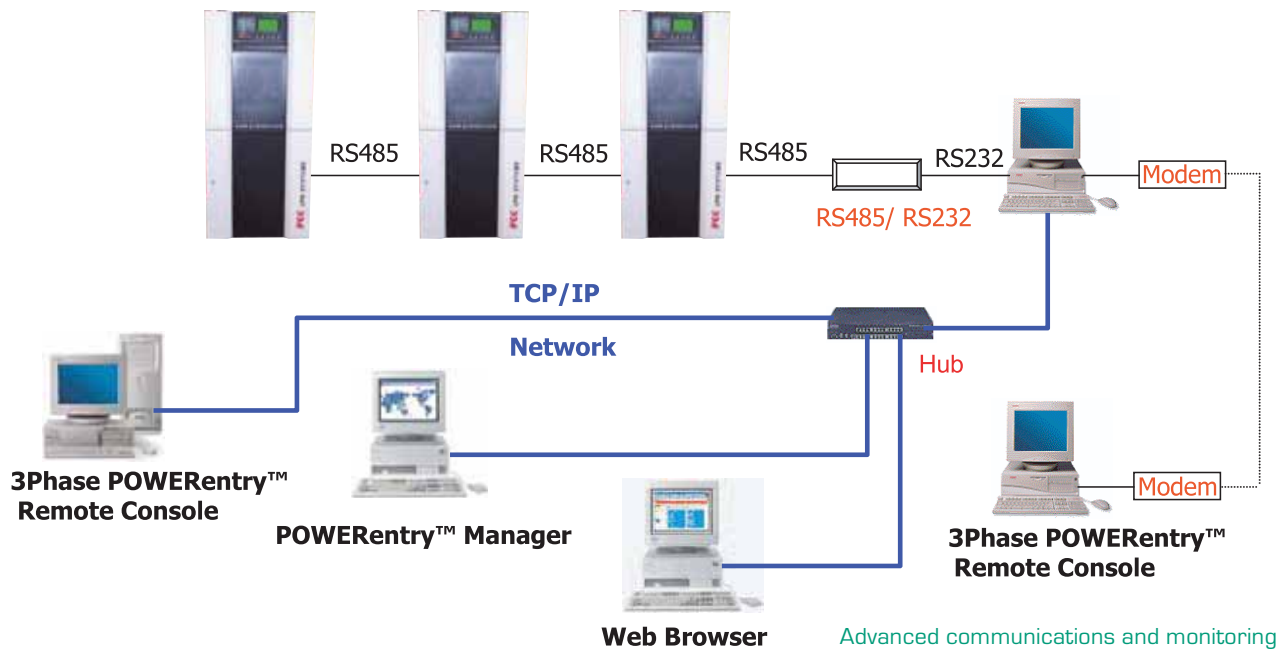
- Galvanic isolation transformer
- Battery start function
- Remote control panel
- SNMP Card / Ethernet Adapter
- Battery temperature sensor and battery charge voltage compensation
- Intelligent network-based power management software

Applications

The NP Series provides a secure power infrastructure for a wide range of applications including:

- Healthcare equipments and life support systems
- Financial applications where high-availability is imperative
- Commercial processing systems
- Industrial Automation
- Broadcasting and Telecommunications Systems
- Data Centers





Communications

The NP UPS is equipped with several communication options designed to simplify monitoring and control. These options include the following:

- An RS-232 serial port
- An RS-485 port
- An SNMP network card slot

This diversity of options allows you to choose the communication method most suitable for your particular back up power installation.

Monitoring

PCE UPS SYSTEMS Inc. realizes that the efficient management of your assets leads to immediate productivity in your organization. For this reason, we have equipped the NP UPS with several management options, all designed to simplify and accelerate daily monitoring and maintenance tasks.

First, the NP UPS features a Liquid Crystal Display screen which provides clear multilingual information on operating parameters. In addition, the NP UPS is fitted with a twin serial port (RS-232 & RS-485) to interface with a nearby computer for management and monitoring purposes.

Optionally, the NP UPS may be fitted with an SNMP card which enables it to be remotely controlled and monitored over a local area network. Using this feature, one central PC station may be used to conveniently monitor and control all the PCE UPS units on premises.

The NP UPS is fully compatible with PCE's suite of connectivity solutions allowing you to preserve critical data and perform controlled shutdown equipment in the event of power disturbance.

Advanced Battery Care

The NP UPS employs unique technologies to increase the life of the batteries.

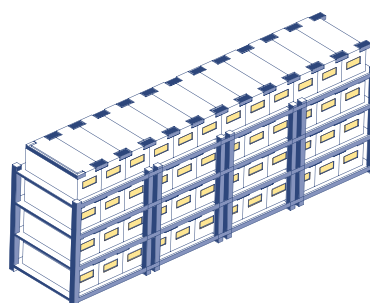
The battery is one of the most important components that make up an Uninterruptible Power Supply system and the degree of power protection that such system provides is closely tied to the quality of the batteries installed. This is a fact that PCE never tires of stressing and for this reason, you will only find Sealed Lead Acid batteries of the most superior quality as a back up power source in our UPS solutions.

In addition, we have equipped the NP Series with the capability to continuously monitor your power input and output status and operate with extreme efficiency accordingly. Such mechanisms increase the system's battery life by up to 60%.

Some of the advanced battery care features that the NP UPS employs are listed below:

- A wide input voltage acceptance range (up to 35%)
- Temperature-compensated battery charger
- Intelligent battery charger
- Charge and discharge cycle control
- End of discharge voltage compensated with time
- Minimum ripple current values
- Algorithm to calculate battery life expectancy
- Periodic battery testing
- Different options for battery placement

All these features put together sum up to considerable savings in your running costs.



NP Model Number	NP 20	NP 30	NP 40	NP 50	NP 60	NP 80	NP 100
Rectifier input							
Nominal input voltage (V) / Voltage tolerance (%)	380V, 400V, 415V (selectable) / ±25, 3 Φ 4 wires						
Nominal input frequency (Hz) / Frequency tolerance (%)	50/60 (selectable) / ±10						
Input current distortion - THDi (%)	<3*						
Power Factor	>0.98						
Walk in / Soft start (programmable - seconds)	10 (1-90)						
Rectifier Hold-off (programmable - seconds)	10 (1-180)						
Inrush current / I _{max}	<1						
Efficiency of rectifier (%)	99						
Rectifier output							
Voltage ripple in float condition (%)	<2						
DC current supplied to inverter in float (A)	50	76	102	126	152	203	253
Battery recharge current setting range (A)	5 - 25	5 - 25	5 - 25	5 - 25	5 - 30	5 - 30	10 - 45
Inverter output							
Nominal output voltage							
- Single phase (V)	Pure sinewave selectable @220, 230, 240					n/a	
- Three phase (V)	Pure sinewave selectable @380, 400, 415 3 Φ 4wires						
Nominal frequency (Hz)	50/60 (selectable)						
Nominal active power (KW)	16	24	32	40	48	64	80
Overload@nominal output voltage for 60min (%)	110						
Overload@nominal output voltage for 10min (%)	125						
Overload@nominal output voltage for 1min (%)	150						
Short circuit current capability for > 0.3 seconds (%)	200						
Voltage stability in steady state condition for input							
DC variations and 100% load variations (%)	±1						
Voltage stability in dynamic condition for 100% nominal load step variations or DC input variations (%)	±4						
Voltage stability in steady state for 100% unbalanced load (%)	±3						
Output frequency stability							
- In synchro with mains (%)	±0.5 (1.0, 1.5, 2.5, 6 selectable)						
- With internal quartz oscillator (%)	±0.01						
Frequency slew rate (Hz/sec)	<1						
Output voltage distortion with 100% linear load (%)	<2						
Output voltage distortion@reference non linear load (%)	<3						
Crest factor	3:1						
DC/AC efficiency:							
- Half Load (%)	93	93	93	93	93	93	93.5
- Full Load (%)	94	94	94	94	94	94	94
Reserve static switch							
Nominal voltage (V)	380V, 400V, 415V (selectable) 3Φ4wires						
Nominal frequency (Hz)	50/60 (selectable)						
Frequency range (%)	±0.5 (1.0, 1.5, 2.5, 6 selectable)						
Voltage range (%)	±20 (selectable)						
Maximum operating voltage (V)	513/297						
Maximum overload capacity							
- For 60 minutes (%)	160						
- For 10 minutes (%)	200						
- For 1 minute (%)	250						
- For 600 milliseconds (%)	300						
- For 100 milliseconds (%)	350						
Transfer time when in synchro (double conversion)							
- Inverter to reserve (ms)	<0.2						
- Reserve to inverter (ms)	<0.1						
Transfer time without synchro (ms)	<15						
Retransfer delay (sec)	5						
Battery							
Optimum battery temperature (°C)	15 - 25						
DC Voltage	348						
End of discharge voltage (V) Programmable	295						
Back up time	Depends on batteries installed						
System Data							
AC/AC efficiency							
- Half load double conversion (%)	92	92	92	92	92.5	92.5	92.5
- Full load double conversion (%)	93	93	93	93	93	93	93.5
- Digital Interactive (%)	97.5						
Noise @ 1m as per ISO3746 (dBA± 2dBA)	<60	<60	<60	<62	<62	<62	<65
Protection degree with open door	IP 20						
Mechanical dimensions:							
- Height (mm)	1400	1400	1400	1400	1400	1400	1400
- Width (mm)	600	600	600	600	600	600	800
- Depth (mm)	800	800	800	800	800	800	830
Number of cabinets	1	1	1	1	1	1	1
Colour (RAL scale)							
- Frame	7035						
- Center panel	7010						
Weight (kg)	345	365	425	460	506	525	700
Environment							
Operating temperature (°C)	0-40						
Max relative humidity @ 25°C (non condensing) (%)	up to 95						
Elevation without derating (m)	2000						
Standards							
Performance	EN 50091-3/IEC 62040-3						
Safety	UL 1778, CE, EN 50091-1, EN 60950 (RD), IEC 60950						
EMC (EMS/EMI)	IEC 61000-4-2/-3/-4/-5/-6/-8/11, IEC 61000-3-2/-3, FCC Part 15, CISPR 22, EN 50091-2/IEC 62040/2, EN 55022/B, FCC 47 Part 15, SubpartB - Class A						
Design, production and services	ISO 9001						
Environment	ISO 14001 certified company						
Marking & Certifications	CE, TUV/GS, UL, cUL, C-Tick						

NP Model Number	NP 120	NP 160	NP 200	NP 260	NP 320	NP 400	NP 500
Rectifier input							
Nominal input voltage (V) / Voltage tolerance (%)	380V, 400V, 415V (selectable) / ±25, 3Φ4wires						
Nominal input frequency (Hz) / Frequency tolerance (%)	50/60 (selectable) / ±10						
Input current distortion - THDi (%)	<3*						
Power Factor	>0.98						
Walk in / Soft start (programmable - seconds)	10 (1-90)						
Rectifier Hold-off (programmable - seconds)	10 (1-180)						
Inrush current / I _{max}	<1			<4			
Efficiency of rectifier (%)	98.5			97.5			
Rectifier output							
Voltage ripple in float condition (%)	<2						
DC current supplied to inverter in float (A)	304	405	506	658	810	1012	1065
Battery recharge current setting range (A)	10 - 45	15 - 75	15 - 75	15 - 95	15 - 95	15 - 115	15 - 135
Inverter output							
Nominal output voltage							
- Single phase (V)	n/a						
- Three phase (V)	Pure sinewave selectable @380, 400, 415 3Φ4wires						
Nominal frequency (Hz)	50/60 (selectable)						
Nominal active power (kW)	96	128	160	208	256	320	400
Overload@nominal output voltage for 60min (%)	110						
Overload@nominal output voltage for 10min (%)	125						
Overload@nominal output voltage for 1min (%)	150						
Short circuit current capability for > 0.3 seconds (%)	200						
Voltage stability in steady state condition for input DC variations and 100% load variations (%)	±1						
Voltage stability in dynamic condition for 100% nominal load step variations or DC input variations (%)	±4						
Voltage stability in steady state for 100% unbalanced load (%)	±3						
Output frequency stability	±0.5 (1.0, 1.5, 2.5, 6 selectable)						
- In synchro with mains (%)	±0.01						
- With internal quartz oscillator (%)	<1						
Frequency slew rate (Hz/sec)	<2						
Output voltage distortion with 100% linear load (%)	<3						
Output voltage distortion@reference non linear load (%)	3:1						
Crest factor							
DC/AC efficiency:							
- Half Load (%)	93.5	93.5	94	94	94	94	94
- Full Load (%)	94	94	95	95	95	95	95
Reserve static switch							
Nominal voltage (V)	380V, 400V, 415V (selectable) 3Φ4wires						
Nominal frequency (Hz)	50/60 (selectable)						
Frequency range (%)	±0.5 (1.0, 1.5, 2.5, 6 selectable)						
Voltage range (%)	±20 (selectable)						
Maximum operating voltage (V)	513/297						
Maximum overload capacity							
- For 60 minutes (%)	160						
- For 10 minutes (%)	200						
- For 1 minute (%)	250						
- For 600 milliseconds (%)	300						
- For 100 milliseconds (%)	350						
Transfer time when in synchro (double conversion)							
- Inverter to reserve (ms)	<0.2						
- Reserve to inverter (ms)	<0.1						
Transfer time without synchro (ms)	<15						
Retransfer delay (sec)	5						
Battery							
Optimum battery temperature (°C)	15 - 25						
DC Voltage	348						
End of discharge voltage (V) Programmable	295						
Back up time	Depends on batteries installed						
System Data							
AC/AC efficiency							
- Half load double conversion (%)	91.5	91.5	91.5	91.5	91.5	91.5	91.5
- Full load double conversion (%)	93.5	94	94	92.5	92.5	92.5	92.5
- Digital Interactive (%)	97.5						
Noise @ 1m as per ISO3746 (dBA± 2dBA)	< 65	< 68	< 68	< 72	< 72	< 72	< 72
Protection degree with open door	IP 20						
Mechanical dimensions:							
- Height (mm)	1700	1700	1700	1950	1950	1950	1950
- Width (mm)	800	1200	1200	1600	1600	1600	1600
- Depth (mm)	830	830	830	995	995	995	995
Number of cabinets	1	1	1	2	2	2	2
Colour (RAL scale)							
- Frame	7035						
- Center panel	7010						
Weight (kg)	745	1000	1080	1680	1720	1920	2250
Environmental							
Operating temperature (°C)	0-40						
Max relative humidity @ 25°C (non condensing) (%)	up to 95						
Elevation without derating (m)	2000						
Standards							
Performance	EN 50091-3/IEC 62040-3						
Safety	UL 1778, CE, EN 50091-1, EN 60950 (RD), IEC 60950						
EMC (EMS/EMI)	IEC 61000-4-2/-3/-4/-5/-6/-8/11, IEC 61000-3-2/-3, FCC Part 15, CISPR 22, EN 50091-2/IEC 62040/2, EN 55022/B, FCC 47 Part 15, SubpartB - Class A						
Design, production and services	ISO 9001						
Environment	ISO 14001 certified company						
Marking & Certifications	CE, TUV/GS, UL, cUL, C-Tick						

* with low THDi option

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