

# Here comes the thunderstorm season!

**- Nonstop power supply will protect your system -**

## Nipron Nonstop power supply Featured

Now we are in the rainy season again. Speaking of the rainy season, "THUNDERSTORM." The most feared thing for systems is the loss of confidence and trust from customers. The "blackout" generated by "thunderstorm" may crash the system in the worst case following its abnormal system shutdown, which burdens vast amounts of money loss to customers.

Though we are supplied with stable power due to high technology of the power company nowadays, we still face "blackout" or "momentary power failure" at switching of transmission grid, and "momentary blackout" that momentarily drops line voltage under natural hazard such as thunderstorm.

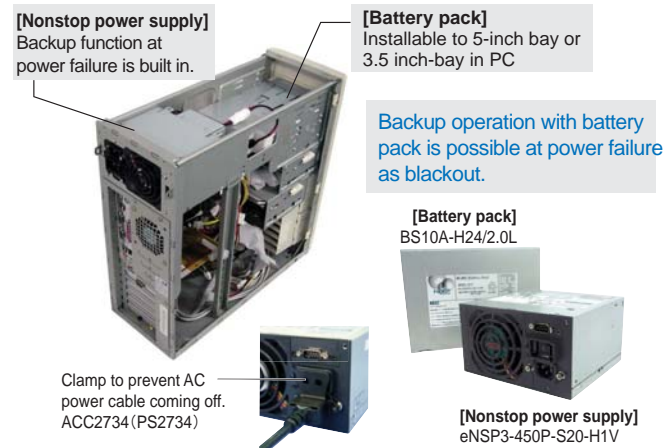
"Blackout (AC power supply stop)" may occur due to cabling trouble, breaker trip, or wrong operation. That is why measures against power failures must be secured for critical systems just in case. Responding to the case, we feature, this time, Nipron's "Nonstop power supply" in a bid to guard customer's critical system from power failures.

### Nonstop power supply is...

Nipron's original equipped with uninterruptible power system installing power failure backup circuit inside. With a battery package connected, the power supply can keep on providing stable power to loads without any abnormality and fluctuation at input voltage problems such as blackout, momentary power failure, and voltage drop.

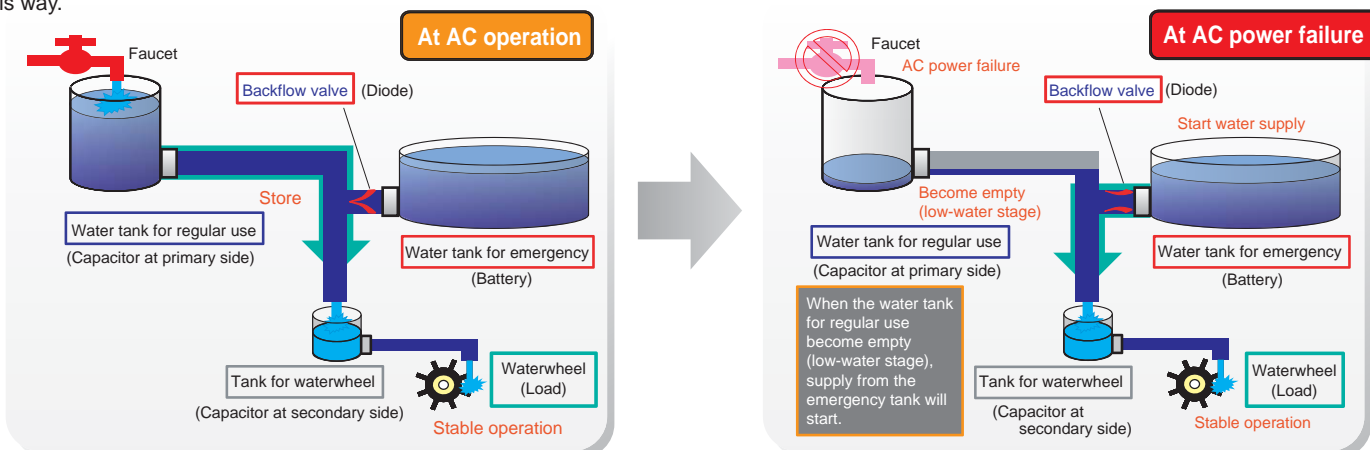
#### Space saving

For Nonstop power supply, battery package for backup is able to be installed to 5-inch bay or 3.5-inch bay in PC (in the chassis) so that Nonstop power supply brings space saving unlike UPS which needs to be mounted outside.



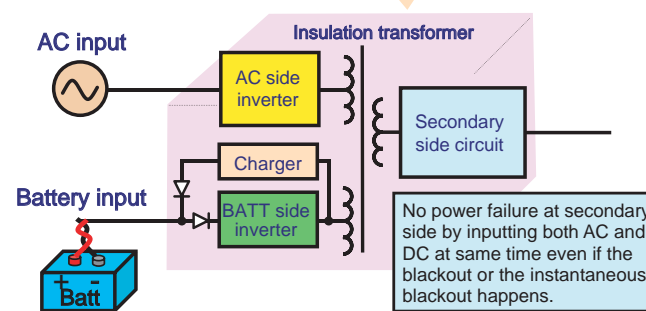
#### Comparing with flow of water:

Compared with flow of water, Nonstop power supply consists of regular-use tank for AC input and emergency use tank for battery input. The water level of the secondary is always kept constant as the water is always supplied from the tank with higher pressure. The principle can be explained in this way.



#### Stable power supply without instantaneous blackout

Nonstop power supply has no time loss to switch the operation to battery at blackout as it compares the voltage level between inverter voltages at AC side and battery side for automatic transfer. Thus it realizes uninterruptible power supply with high reliability. Principle of typical Nonstop power supply is shown below.



The power supply has two gates (input) and two engines (converter), one for AC side and the other for battery side, and completely isolated each other. Two inputs from AC side and battery side are connected at a time to one high frequency transformer. This is called 2 (two) gates and 2 (two) engines method (parallel converters) - Our patent circuit. Power to load is provided from AC side normally. Once input voltage drop or power stop (blackout) occurs at AC side, the power is provided from battery side to compensate this situation. Accordingly, uninterruptible power environment is provided to secondary outputs so that no damage to computer system is given to secure continuous operation.

### Differences from the UPS

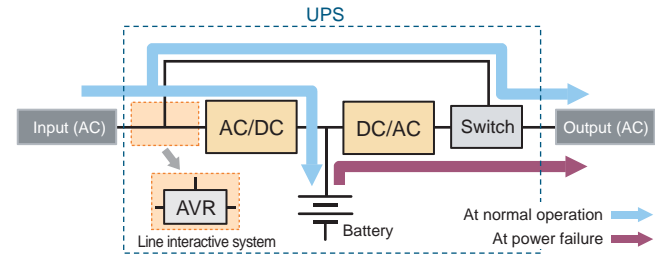
UPS (uninterruptible power supply system) is well known as one of the measure for power failure. Here are some differences between UPS and Nipron's nonstop power supply.



#### Categories of UPS

UPS is categorized mainly in two systems, one is standby power system (line interactive power system) and the other is online power system.

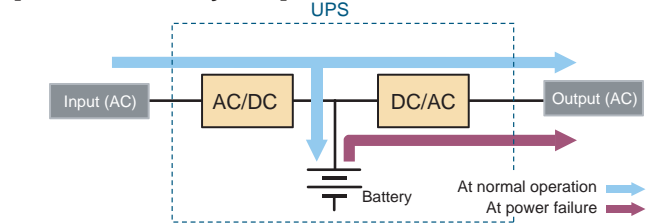
#### [Standby power system (Line interactive system)]



Standby power system normally outputs commercial alternating current as it is, and switches to battery power when blackout is detected or input voltage drops. For this reason, switching time loss is inevitable at system switching. On the other hand, for online power system, AVR (automatic voltage regulator) is added to standby power system to cover wider input voltage range than standby power system. There might cause some problems with equipments connected as output waveform of both systems at battery operation are usually pseudo-sine waves (square wave.)

Also, wave distortion of waveform of supply mains (input) leads UPS to judge blackout wrongly in many cases so that the system is switched to battery operation causing system shutdown. (In particular, switching mode equipments such as inverters used in railways generates wave distortion.)

#### [Online inverter system]



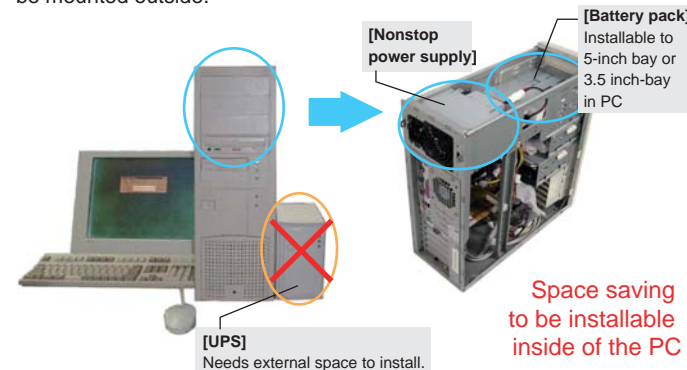
Online inverter system provides alternating current via inverter whether supply mains is normal or blackout. For this reason, switching time to battery operation is zero securing continuous output power. Output waveform is usually sine wave and the circuit is costly complicated. However, in the case that the system is used under severe supply mains change, or stable output voltage is required for equipments connected, online power system should be selected for UPS.

#### Differences between Nonstop power supply and UPS

What is the difference between Nonstop power supply and UPS? Here are the answers compared with online inverter system UPS. (Because nonstop power supply is also high reliability power supply that can be operate stably without instantaneous power failure.)

#### Difference (1) Space saving:

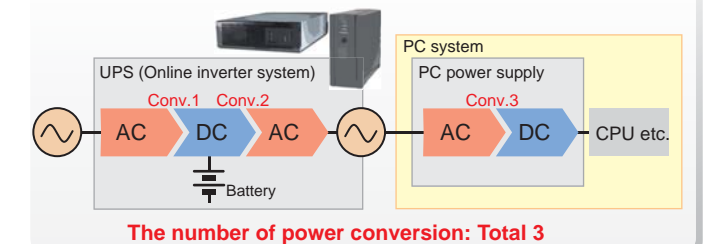
For Nonstop power supply, battery package for backup is able to be installed to 5-inch bay or 3.5-inch bay in PC (in the chassis) so that Nonstop power supply brings space saving unlike UPS which needs to be mounted outside.



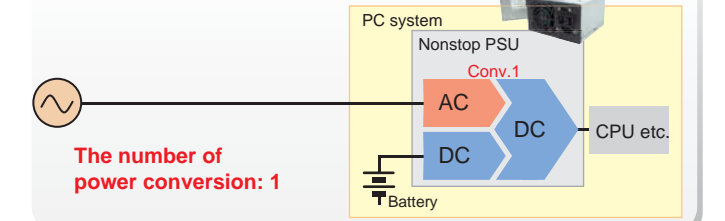
#### Difference (2) High efficiency and Energy saving:

Nowadays, "DC power dispatching system" that dispatches electric power to equipments in DC mode has become a topic as energy saving. DC power dispatching system feeds power to equipments which operate with DC input voltage (almost equipments including PCs, of course) so that efficiency can be increased by decreasing the number of conversion from AC to DC to realize energy saving. As with DC power dispatching system, our Nonstop power supply can decrease the number of power conversion to PCs. So to speak, "DC backup power supply."

#### [UPS (Online inverter system)]



#### [Nonstop PSU (Representative system)]

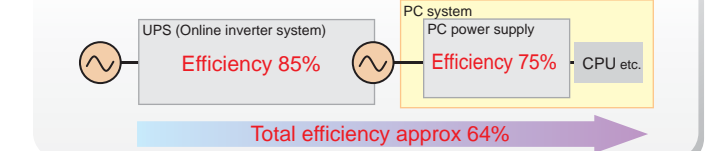


At normal operation, UPS conducts power conversion two times inside UPS. Additionally power conversion is conducted once in PC. Therefore the number of conversion becomes three times in total. Also, two conversions are processed at blackout in total. On the other hand, Nonstop power supply conducts only one conversion regardless of input voltage condition, normal or blackout remaining without lowering efficiency, resulting in energy saving in comparison with UPS. Moreover, as UPS and PC power supply is connected in series, when AC cable connecting UPS and PC power supply comes off accidentally, power to PC system is lost leading to most dangerous shutdown. While, for Nonstop power supply, as the circuit is connected in parallel and also a battery is installed inside PC, this kind dangerous situation never happens and it gives advantage of Nonstop power supply over UPS in reliability as well.

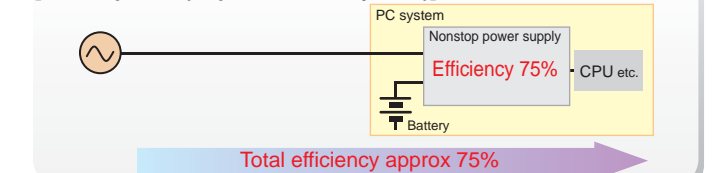
#### Difference of efficiency and space saving

Let's compare the actual differences between the number of power conversions. Suppose 85% efficiency for UPS, 75% for PC power supply, and also 75% for Nonstop power supply. Total efficiency for the system connected with UPS would be 64% (0.85 times 0.75) which is 11% lower than Nonstop power supply.

#### [UPS (Online inverter system)]



#### [Nonstop PSU (Representative system)]



#### In case of 24-hour continuous operation with PC load capacity 300W

	Efficiency	Load capacity	Input capacity	Electric bills (yen/year)	CO <sub>2</sub> emission
UPS connected	64%	300W	469W	82,125 yen	1,552kg
Nonstop PSU	75%	300W	400W	70,080 yen	1,325kg

(\*1) 20 yen/kWh conversion (\*2) 0.378 kgCO<sub>2</sub>/kWh conversion  
Compared the efficiency with above data, nonstop power supply can reduce; Electric bills approx 12,045 yen/year, and CO<sub>2</sub> emission approx 227 kg/year.

We recommend the Nipron. Nipron Web Sales

<http://www.nipron.com/>

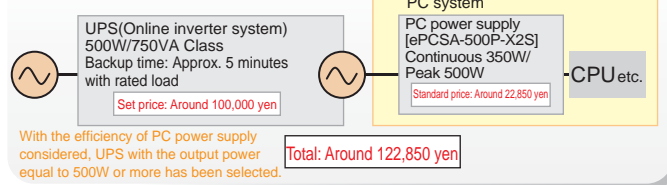
You are in trouble with blackout caused by thunderstorm or accidents, are you not?

<http://www.nipron.com/>

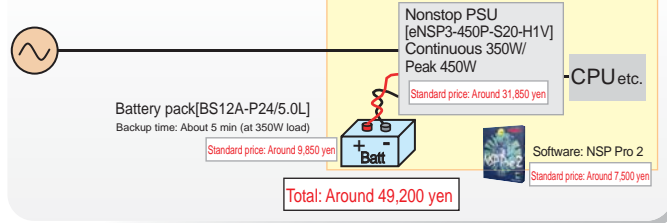
### Difference (3) Cost:

Cost differences between UPS connection and Nonstop power supply connection is shown below. (However, standard price for the power supply mentioned below do not include output harnesses.)

#### UPS (Online inverter system)



#### Nonstop PSU (Representative system)



In comparison with the condition above, 70,000 yen or more cost reduction can be achieved for Nonstop power supply than UPS introduction. (In addition, this comparison is on a basis of catalog price, not actual sales price. Also, as the price of UPS depends on manufacturers, take this comparison just as a guideline.)

### Automatic shutdown available

With automatic shutdown software "NSP-Pro-2" installed, critical data and the system can be protected from power failures such as unexpected blackout, voltage fluctuation, in conjunction with Nonstop power supply.

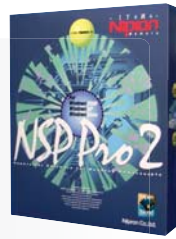
Supply mains status signals sent to serial port (COM port) via RS-232C from Nonstop power supply are monitored, and non-stop system operation for a short period of time is provided with blackout confirmation timer. And for blackout for a long period of time, Windows is automatically shut down by automatic shutdown function to shut down the system in safety. (\*Some models allow USB communication. (OS standard UPS service for Windows2000/XP may be utilized, but time setting in detail is not available.)

#### Automatic shutdown software

##### Model: NSP Pro 2

OS specification:  
Windows 2000/XP/Vista (Testing now with Windows 7)

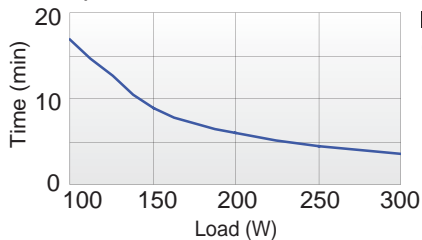
- Advanced time setting (blackout recovery monitoring time, etc.) that Windows standard UPS service does not cover is available.
- Visible and easy setting by GUI



Connect Nonstop power supply and PC with RS232C cable [WH2601-02] (PS2601-02) (Some models allow USB communication.)



#### Backup time\*

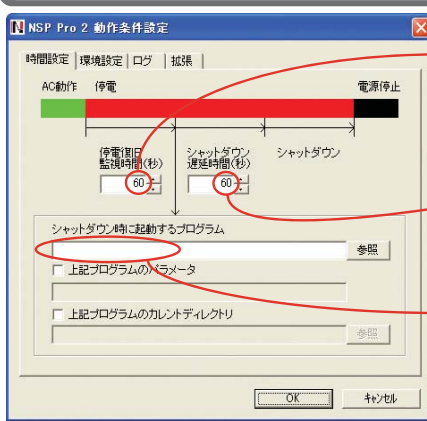


■ Battery pack (BS10A-H24/2.0L)



\* Backup time when battery package BS10A-H24/2.0L is in use. (Backup time varies on models of battery package.)  
\* Backup time is just a reference at first use, not guaranteed.  
\* Time till output shutdown from occurrence of blackout

#### Monitor screen (Time setting)

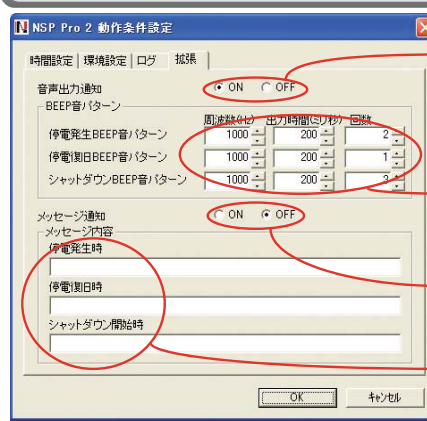


The time to judge that recovery is impossible after a blackout can be set up in second.

Shutdown delay time, after it is judged that recover is impossible, can be set up in second.

Specific program in "exe" and "bat" can be set up to operate at the moment is judged that recovery is impossible.

#### Monitor screen (Condition setting)



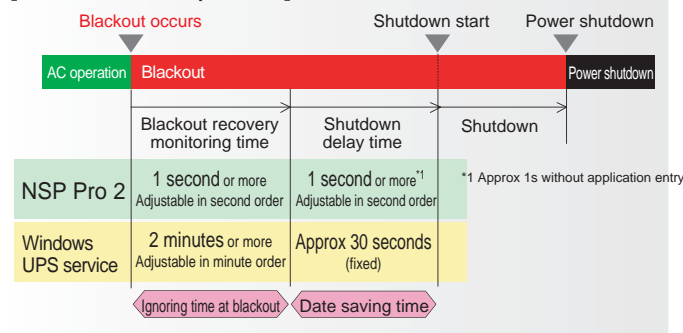
It allows to set up whether to deliver a noise at blackout, recovery, and the start of shutdown.

It allows to set up the frequency, time, and the number of beep noise at blackout, recovery, and the start of shutdown.

It allows to set up whether to display a message at blackout, recovery, and the start of shutdown.

It allows to change the content of the message delivered at blackout, recovery, and the start of shutdown.

#### [Shutdown sequence]



#### Other features

- Log output (13 kinds of logs are selectable)
- Reboot at blackout recovery  
System re-boot or not can be specified in the case that supply mains has been recovered during shutdown delay time.
- Ignoring time at initial blackout  
If blackout detection within a specific time is not desired after the start of Nonstop power supply monitoring service, the time can be specified in second order.
- Voice notice is available when abnormality occurs.
- Conjunction with user application is available with communication interface installed.

#### Summary

Nonstop power supply achieves high efficiency by minimizing the number of power conversion to one allowing reduction of electricity cost and CO2 emission. In addition, you could gain a lot of merits such as higher reliability, space saving, and system introduction cost saving with Nonstop power supply implementation.

For models, many are lined up as shown in the following pages including batteries such as Lead-acid battery, Ni-MH battery to choose from.

Pick up our Nonstop power supply for your critical system protection from power failures.

### Categories of Nonstop power supply system

Nonstop power supply is categorized as following table according to its backup time or use.

Nonstop power supply system	Features	Adopted model
<b>2G-2E system</b> 	Our original circuit (Patented) has 2 (two) inputs (gates) for AC and DC for each and 2 (two) converters (engines) realizing parallel converter system to receive both AC and DC for one high frequency transformer. We call this system 2G-2E (2 gates-2 engines) circuit. Its feature brings you compact, lightweight and high efficiency due to one transformer which handles AC input, DC input, and DC output. Also, several models have its GND of DC input (battery) isolated so that operation without affection by noise can be achieved even though multiple equipments are connected to one battery. In addition, Nonstop power supply with 2G-2E system have two categories. One is for only backup purpose at blackout (startup with DC input is unavailable.), and the other for both AC + DC input (startup with single DC input is available.) Both categories are lined up.	<b>[DC startup unavailable]</b> eNSP3-450P-S20 series mNSP3-450P-S20 series eNSP-300P series aNSP3-250P series eNSP3-200-S10-H1 NSP3-150-F2S GNSP3-750 series  <b>[DC startup available]</b> NSP2-250-D2S NSP2-250-F2S cNSP-250-D4S vNSP-300P-X4S
<b>Secondary side backup system</b> ● Multi-output PSU 	In this system, battery is connected to secondary line. For ATX output (multi outputs), as outputs are delivered via DC-DC conversion after AC-DC conversion, the efficiency is lower than 2G-2E system. However, this system keeps almost the same efficiency as 2G-2E level as a result by improving the efficiency of DC-DC converter applying synchronous rectifying circuit. Also, the efficiency at DC input (battery) operation is the same as the efficiency of DC-DC converter (90% or more) resulting in longer backup time than 2G-2E system. For single output power supply, output is delivered via DC-DC converter (booster circuit) with charger circuit installed in battery package side. Additionally, isolation between DC input and DC output is unavailable. Besides, this model is designed only for backup at blackout (Startup with DC input is unacceptable.)	<b>[DC startup unavailable]</b> NSP6F-220P-S10 PCFL-180P-X2S2 PCFD-180P-X2S OZP-120 24V series OZP-170 24V series GPSA-360 24V series GPSA-750 24V series
<b>Primary side backup system</b> 	In this system, capacitor package shall be connected (or extended) to primary rectifying capacitor. Backup time is shorter (approx. 1 sec with 180W load) than battery and this system is the best way at momentary backing. Moreover, due to quick charging, this system can handle the environment where momentary blackout frequents	eNSP4-500P series

### Product lineup of Nonstop power supply

#### 2G-2E system (DC startup unavailable, Common GND between Battery-DC output)

##### eNSP3-450P-S20 series

0A as min load current for all outputs, high-powered Nonstop power supply

ATX Continuous 350W Peak 450W

Safety standard	UL	CSA	EN	CE	CCC
AC input	85-264V (Worldwide input)				
Output voltage	+3.3V	+5V	+12V	-12V	+5VSB
Output current	20A	22A	22A	0.5A	2A
Max current/power (Continuous)	160W max 334W max 350W max				
Applicable battery pack	30A 33A 30A 0.5A 2.5A				
Peak current/power (Within 5s)	200W max 432W max 450.5W max				
Min current	0A	0A	0A	0A	0A
WxHxD(mm)	150x86x140 PS/2 size				

##### mNSP3-450P-S20 series

Medical standard compliant high-powered Nonstop power supply

ATX Continuous 301W Peak 450W

Safety standard	UL	CSA	EN	CE	CCC
AC input	85-264V (Worldwide input)				
Output voltage	+3.3V	+5V	+12V	-12V	+5VSB
Output current	20A	22A	22A	0.5A	2A
Max current/power (Continuous)	160W max 285W max 301W max				
Applicable battery pack	30A 33A 30A 0.5A 2.5A				
Peak current/power (Within 5s)	200W max 432W max 450.5W max				
Min current	0A	0A	0A	0A	0A
WxHxD(mm)	150x86x140 PS/2 size				

##### eNSP-300P series

Nonstop power supply with Removable backup function

ATX Continuous 203W Peak 303W

Safety standard	UL	CSA	EN	CE	CCC
AC input	85-264V (Worldwide input)				
Output voltage	+3.3V	+5V	+12V	-5V	+5VSB
Output current	14A	21A	10A	0.3A	0.8A
Max current/power (Continuous)	125W max 185W max 203.6W max				
Applicable battery pack	28A 30A 15A 0.3A 0.8A 2.5A				
Peak current/power (Within 5s)	180W max 280W max 303.6W max				
Min current	0A	1A	0A	0A	0A
WxHxD(mm)	150x86x155 PS/2 mounting size				

##### aNSP3-250P series

Low cost type Nonstop power supply with input selection SW

ATX Continuous 203W Peak 251W

Safety standard	UL	CSA	EN	CE	CCC
AC input	90-132V, 180-264V (Switching system)				
Output voltage	+3.3V	+5V	+12V	-5V	+5VSB
Output current	14A	21A	10A	0.3A	0.8A
Max current/power (Continuous)	125W max 185W max 203.6W max				
Applicable battery pack (-S20)	20A 25A 13A 0.3A 0.8A 2A				
Peak current/power (Within 5s)	155W/35A max 230W max 251.1W max				
Min current	0A	2A	0A	0A	0A
WxHxD(mm)	150x86x140 PS/2 size				

##### eNSP3-200-S10-H1

Nonstop power supply with 3.5 inch battery pack

ATX Continuous 202W

Safety standard	UL	CSA	EN	CE	CCC
AC input	85-264V (Worldwide input)				
Output voltage	+3.3V	+5V	+12V	-12V	+5VSB
Output current	14A	21A	10A	0.8A	2.5A
Max current/power (Continuous)	125W max 185W max 202.1W max				
Applicable battery pack	BP03A-H16/2.5L 3.5 inch bay size, Ni-MH battery BS03A-H16/2.5L 3.5 inch bay fixed type, Ni-MH battery				
Min current	0A	1A	0A	0A	0A
WxHxD(mm)	150x86x140 PS/2 size				

##### NSP3-150-F2S

With +24V Output Nonstop power supply

Multi Continuous 152W

Safety standard	UL	CSA	EN	CE	CCC
AC input	85-264V (Worldwide input)				
Output voltage	+5V	+12V	+24V	-12V	+5VSB
Output current	20A	5A	2A	0.5A	1A
Max current/power (Continuous)	125W max 152W max				
Min current	1.5A	0A	0A	0A	0A
WxHxD(mm)	150x86x140 PS/2 size				

# Product lineup of Nonstop power supply

## 2G-2E system (DC startup available, Battery-GND Isolated)

### GNSP3-750 series

All in one type system power supply with isolated 2ch outputs

With installing device server optional board, remote monitoring, communication, and control via the internet are available.



Applicable battery pack  
BS19A-P48/5.0L : 4U/3U size fixed type, Lead-acid battery

AC input	85-264V (Worldwide input)
Model name	GNSP3-750-242405-TRP / GNSP3-750-121205-TRP / GNSP3-750-241205-TRP
Output voltage	+24V +24V +5VSB +12V +12V +5VSB +24V +12V +5VSB
Max current/power (Continuous)	15A 15A 1.5A 30A 30A 1.5A 15A 30A 1.5A 727.5W max 727.5W max 727.5W max
Peak current/power (Within 5s)	22.5A 22.5A 1.5A 45A 45A 1.5A 22.5A 45A 1.5A 1087.5W max 1087.5W max 1087.5W max
Min current	0A 0A 0A 0A 0A 0A 0A 0A 0A
W x H x D (mm)	82 x 128 x 235 (2U wide/3U high)

### 24V+ATX

Connectors for ATX output (Optional)

AC input	85-264V (Worldwide input)
Model name	GNSP3-750-24X05-TRP
Output voltage	+24V +3.3V +5V +12V -12V +5VSB
Max current/power (Continuous)	15A 14A 21A 28A 0.3A 1.5A 348.1W max
Peak current/power (Within 5s)	22.5A 20A 30A 40A 0.3A 1.5A 527.5W max
Min current	0A 0A 0A 0A 0A 0A
W x H x D (mm)	82 x 128 x 235 (2U wide/3U high)

### 12V+ATX

connectors for ATX output (Optional)

AC input	85-264V (Worldwide input)
Model name	GNSP3-750-12X05-TRP
Output voltage	+12V +3.3V +5V +12V -12V +5VSB
Max current/power (Continuous)	30A 14A 21A 28A 0.3A 1.5A 348.1W max
Peak current/power (Within 5s)	45A 20A 30A 40A 0.3A 1.5A 527.5W max
Min current	0A 0A 0A 0A 0A 0A
W x H x D (mm)	82 x 128 x 235 (2U wide/3U high)

## 2G-2E system (DC Startup available, Battery-GND Isolated)

### NSP2-250-D2S

DC startup available Nonstop power supply



Applicable battery pack  
BS05A-P24/2.2L(K) : 5 inch bay fixed type, Lead-acid battery  
RBS01A-P24/2.2L(K) : 5 inch bay removable type, Lead-acid battery  
BS06A-H24/2.5L\* : 5 inch bay fixed type, Ni-MH battery  
BS06B-H24/2.5L\* : 5 inch bay fixed type, Ni-MH battery

Output connectors

AC input	85-264V (Worldwide input)
DC input	24V (20-32V)
Output voltage	+3.3V +5V +12V -5V -12V +5VSB
Max current/power (Continuous)	10A 23A 12A 0.5A 0.5A 1A 133W max
Peak current/power (Within 10s)	10A 23A 12A 0.5A 0.5A 1A 217W max
Min current	0A 1.5A 0A 0A 0A 0A
W x H x D (mm)	150 x 86 x 140 PS/2 size

### NSP2-250-F2S

AT output type Nonstop power supply with 24V output



Applicable battery pack  
BS05A-P24/2.2L(K) : 5 inch bay fixed type, Lead-acid battery  
RBS01A-P24/2.2L(K) : 5 inch bay removable type, Lead-acid battery  
BS06A-H24/2.5L : 5 inch bay fixed type, Ni-MH battery  
BS06B-H24/2.5L : 5 inch bay fixed type, Ni-MH battery

Output connectors

AC input	90-264V (Worldwide input)
DC input	24V (20-32V)
Output voltage	+5V +12V +24V -5V -12V +5VSB
Max current/power (Continuous)	10A 4A 6A 0.2A 0.2A 1A 232W max
Peak current/power (Within 10s)	17A 40A 8A 0.5A 0.5A 1A 240.4W max
Min current	0.5A 0A 0A 0A 0A 0A
W x H x D (mm)	150 x 86 x 140 PS/2 size

### cNSP-250-D4S

Nonstop power supply for Compact PCI



Applicable battery pack  
BS19A-P48/5.0L\*1 : 4U/3U size fixed type, Lead-acid battery  
PS2866\*2 : Ni-MH battery with 6U10HP size VME rack type

Output connectors

AC input	90-264V (Worldwide input)
DC input	48V (40-59V)
Output voltage	+3.3V +5V +12V -12V +5VSB
Max current/power (Continuous)	10A 30A 4A 2A 1A 173W max
Peak current/power (Within 10s)	10A 30A 4A 2A 1A 250W max
Min current	0A 2A 0A 0A 0A
W x H x D (mm)	40.3 x 268 x 171

### vNSP-300P-X4S

Nonstop power supply for VMEbus



Applicable battery pack  
BS19A-P48/5.0L\*1 : 4U/3U size fixed type, Lead-acid battery  
PS2866\*2 : Ni-MH battery with 6U10HP size VME rack type

Output connectors

AC input	85-264V (Worldwide input)
DC input	48V (40-65V)*
Output voltage	+3.3V +5V +12V -12V +5VSB
Max current/power (Continuous)	15A 35A 5A 4A 0.5A 39A max
Peak current/power (Within 10s)	17A 40A 7A 5A 0.5A 40A max
Min current	0A 2A 0A 0A 0A
W x H x D (mm)	50.4 x 261.9 x 175.6

## Secondary side backup system (DC startup unavailable, Common GND between battery and DC output)

### NSP6F-220P-S10

SFX size, small type Nonstop power supply



Applicable battery pack  
BP03A-H18/2.5L : 3.5 inch bay size, Ni-MH battery  
BS03A-H18/2.5L : 3.5 inch bay fixed type, Ni-MH battery

Output connectors

AC input	85-264V (Worldwide input)
Output voltage	+3.3V +5V +12V -12V +5VSB
Max current/power (Continuous)	10A 10A 10A 0.3A 1.5A 160W max
Peak current/power (Within 5s)	10A 10A 14A 0.3A 1.8A 220W max
Min current	0A 0A 0A 0A 0A
W x H x D (mm)	100 x 63.5 x 145

### PCFL-180P-X2S2

Fanless Nonstop power supply



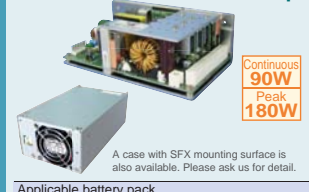
Applicable battery pack  
BS17A-H24/2.0L : 3.5 inch bay fixed type, Ni-MH battery

Output connectors

AC input	85-264V (Worldwide input)
Output voltage	+3.3V +5V +12V -12V +5VSB
Max current/power (Continuous)	10A 10A 7.5A 0.3A 1.5A 60W max
Peak current/power (Within 5s)	10A 10A 8.5A 0.3A 1.5A 70W max
Min current	0A 0A 0A 0A 0A
W x H x D (mm)	93 x 55 x 160

### PCFD-180P-X2S

Fanless Nonstop power supply with DC input



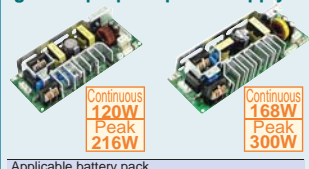
Applicable battery pack  
BS17A-H24/2.0L : 3.5 inch bay fixed type, Ni-MH battery

Output connectors

DC input	20-36V
Output voltage	+3.3V +5V +12V -12V +5VSB
Max current/power (Continuous)	10A 10A 7.5A 0.3A 1.5A 60W max
Peak current/power (Within 5s)	10A 10A 8.5A 0.3A 1.5A 70W max
Min current	0A 0A 0A 0A 0A
W x H x D (mm)	93 x 55 x 160

### OZP-120 24V series

Nonstop function mounted to the general purpose power supply



Applicable battery pack  
BS14A-H24/2.5L : 1U/2U size fixed type, Ni-MH battery

Output connectors

AC input	85-264V (Worldwide input)
Output voltage	+24V +24V
Max current/power (Continuous)	5A 7A 120W 168W
Peak current/power (Within 5s)	6.3A 8.8A 151.2W 211.2W
Min current	0A 0A
W x H x D (mm)	73 x 35 x 180 (Board type) 83.8 x 45 x 210 (W/ chassis and cover)

### GP5A-360 series

Medical standard also compliant, single output power supply with 12VSB output



Applicable battery pack  
BS14A-H24/2.5L : 1U/2U size fixed type, Ni-MH battery

Output connectors

AC input	85-264V (Worldwide input)
Output voltage	+24V +12VSB +24V +12VSB +24V +12VSB
Max current/power (Continuous)	15A 0.3A 15A 0.3A 30A 0.3A 360W 3.6W 360W 3.6W 720W 3.6W
Peak current/power (Within 5s)	20.8A 0.3A 30A 0.3A 40A 0.3A 499.2W 3.6W 720W 3.6W 960W 3.6W
Min current	0A 0A 0A 0A 0A 0A
W x H x D (mm)	41 x 128 x 230 (1U wide/3U high)

## Primary side backup system (intended to backup at instantaneous power failure by electrolytic capacitor)

### eNSP4-500P series

The best choice for instantaneous power failure measure. Capacitor backup power supply



Applicable capacitor packages  
BS13A-EC400/422F : 5 inch bay fixed type, capacitor packages

Output connectors

AC input	85-264V (Worldwide input)
Output voltage	+3.3V +5V +12V -12V +5VSB
Max current/power (Continuous)	20A 22A 22A 0.5A 2A 160W max
Peak current/power (Within 5s)	30A 33A 30A 0.5A 2.5A 334W max
Min current	0A 0A 0A 0A 0A
W x H x D (mm)	82 x 128 x 230 (Board type) 150 x 86 x 140 PS/2 size

## Battery packages

<b>BS05A-P24/2.2L(K)</b> <b>BS11A-P24/2.3L(K)</b> Lead 5" bay 	<b>RBS01A-P24/2.2L(K)</b> <b>RBS02A-P24/2.3L(K)</b> Lead 5" bay/Removable 	<b>BS12A-P24/5.0L</b> Lead 5" 2 bay 	<b>BS17A-H24/2.0L</b> Ni-MH 3.5" bay 	<b>BS10A-H24/2.0L</b> <b>BS22A-H24/2.0L</b> (See below) Ni-MH 5" bay 
<b>BS06A-H24/2.5L</b> <b>BS06B-H24/2.5L</b> Ni-MH 5" bay 	<b>BS03A-H16/2.5L</b> <b>BP03A-H16/2.5L</b> Ni-MH 3.5" bay 	<b>BS19A-P48/5.0L</b> Lead 3U/4U 	<b>BS14A-H24/2.5L</b> Ni-MH 1U/3U 	<b>BS13A-EC400/422F</b> Capacitor 5" bay 

\*The backup time is only for reference at initial use, NOT guaranteed. \*Line charts shows time length from blackout to power supply shutdown.

## Display battery Life span & Condition! Schedule operation available!

Intelligence Battery Pack "Mi-Pack II Manager" Server's automatic operation is possible!

Battery pack BS22A-H24/2.0L + Application software Mi-Pack II Manager + Nonstop power supply eNSP3-450P-S20-H\*V = Adoption example TOSHIBA server MAGNIA LITE415E

**Calculation** Life span based on changes of features (a. Changes of inner resistance, b. Changes of unbalance voltage when discharging)

**Judgment** When difference between default value and present value exceeds the fixed value

**Notice** E-mail is delivered to max 5 addresses. Using dedicated control software (Mi-Pack II Manager) enable to manage schedules in the PC (automatic start-up/shutdown). Not just specific date, you can also set the schedule per week. That means, for example, daily start-up/shutdown operation at the work place as personal office if setting schedule by fixed daytime. Automatic operation is also available for production line, monitoring system, and others.

**E-mail information**

- Start/stop monitoring
- Backup/recovery occurred
- Battery voltage decreased
- Operate battery shutdown
- Application registration
- Application start up failure
- Operate schedule shutdown
- Life span based on time after the start of using
- Life span based on total discharge capacity
- Life span based on ambient temperature
- Charging current abnormality
- Life span based on depth of cycle discharge
- Battery voltage difference prediction
- Inner resistance life span prediction
- Power supply fan abnormality/recovery
- Discharging current abnormality/recovery
- Battery pack fan abnormality/recovery
- Battery voltage rise abnormality/recovery
- Battery voltage decline abnormality/recovery
- Battery temperature rise abnormality/recovery
- Charging current abnormality

Gives notice for battery's life span, so periodical replacement of the battery pack will not be needed. It may possibly be used for more than 7 years without battery replacement.

## Monitor screen structure and operation (monitor)

Remaining capacity, Remaining life span, Error message display box, Log display

## Monitor screen structure and operation (Scheduling)

Daily data, Weekly data

Up to 300 sets of data are shown on the list

For normal settings, use weekly setting. For special day such as public holiday and new year, use daily setting and modify or cancel the set-up time.

- OS specification
- Windows Server 2008 R2 (x64)
  - Windows Server 2008 R2 Server Core (x64)
  - Windows Server 2008 (x86/x64)
  - Windows Server 2008 Server Core (x86/x64)
  - Windows Server 2003 R2 (x86/x64)
  - Windows 7 (x86/x64)
  - Windows Vista (x86)
  - Windows XP (x86)
  - Windows 2000 SP4 (x86) (IE5.01 or later)

All advantages of Nonstop power supply are just in front of you. Nipron Web Sales <http://www.nipron.com/>

Most suitable PSU for your system will be advised. Nipron Web Sales <http://www.nipron.com/>

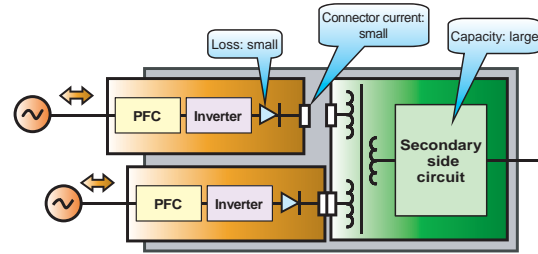
## Application version of Nonstop power supply!

Redundant power supply brought by brand-new idea born from Nonstop circuit

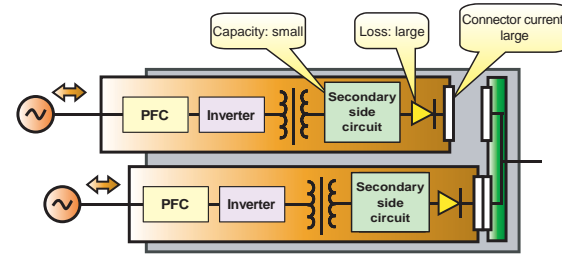
# Primary redundant system

Primary redundant power supply is redundant power supply that only primary side is redundant and secondary side is common realized by Nipron's unique circuit technology. Improving reliability of primary side that is likely to be damaged by surge stress caused by lightning surge and high-voltage switching circuit including PFC circuit, and thermal reliability, this brand-new redundant power supply is designed to have more reasonable margin than normal redundant power supply (full redundant power supply) even in a limited space.

### Primary redundant system



### Existing full redundant power supply



	Primary redundant system (Nipron system)	Existing full redundant power supply (Power supply without enough space)
Efficiency	- Power loss of mutual interference diode is several wattage or less as it is mounted in primary side. - As secondary side is in common, component size is one rank or two larger to contribute to higher efficiency due to lower resistance (77% typical at AC 240V). *Our new product achieves high efficiency 85% typ at AC 240V.	- As Oring diode for parallel operation is mounted in each main output, power loss is 10W to some 10W to raise temperature and reduce efficiency of the power supply. - With components squashed up in a small space, power loss caused by chokes or electric capacitors is large.
Simplicity of circuit and number of components	- Number of components is fewer as secondary side is in common, and it has margin in component size to keep clearance between them. Also it has large derating of part rating.	- Same secondary circuit is doubled to meet full redundancy to increase components and likely to cause mutual touching of components.
When one unit of redundant unit fails;	- By making secondary side in common and having enough margin in components, even one primary unit can afford continuous full power with no problem including primary unit components.	- With load sharing between 2 units, when one unit fails, the other unit has to burden all output power limiting long time operation (one hour or longer) as thermal design has no margin.

### Products line-up

#### pNSP2U-550P-AAS

AC input	85-264V (Worldwide input)					
Output voltage	+3.3V	+5V	+12V1	+12V2	+12V3	-12V +5VSB
Max current/power (Continuous)	20A	20A	18A	12A	10A	0.5A 2A
	35A max					
	427.6W max					
Peak current/power (Within 5s)	20A	20A	18A	12A	16A	0.5A 2A
	25A max					
	44A max					
	550W max					
Min current	0A	0A	0A	0A	0A	0A
W x H x D (mm)	108 x 83.8 x 400					



#### pNSP2U-330P-AAS

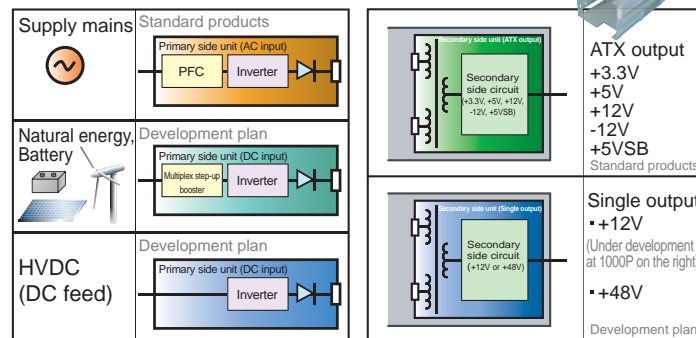
AC input	85-264V (Worldwide input)					
Output voltage	+3.3V	+5V	+12V	-12V	+5VSB	
Max current/power (Continuous)	10A	10A	18A	0.5A	2A	
	260W max					
	276W max					
Peak current/power (Within 5s)	15A	15A	25A	0.5A	2A	
	312W max					
	328W max					
Min current	0A	0A	0A	0A	0A	
W x H x D (mm)	108 x 83.8 x 300					

### Wide application of Primary redundant power supply

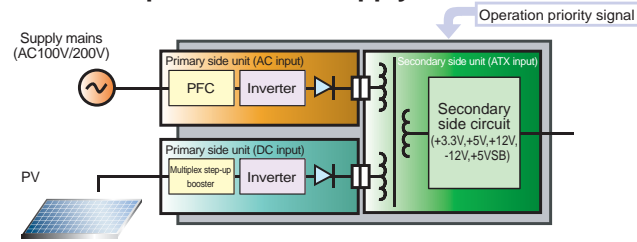
By changing primary unit in primary redundant power supply, disparate inputs such as natural energy (photovoltaic cells, wind generation, etc.) and HVDC become acceptable. For example, by inputting two disparate inputs, commercial input + natural energy (photovoltaic cells), reduction of CO<sub>2</sub> emission is expected utilizing best mix. Burden ratio between two type of inputs (disparate inputs) is adjustable by external signal so that CO<sub>2</sub> emission minimization program becomes available. In addition, secondary unit for single output (12V, 48V) and ATX specification can be ready.

#### Primary side unit

#### Secondary side unit



#### In case input from both supply mains and solar



At normal operation, energy source alternates between commercial power and photovoltaic cells. By using operation first signal, either of those sources can be given priority in operation for effective use. For example, photovoltaic cells comes first during daylight(\*), and in the night commercial power comes first utilizing midnight power effectively.

(\* In the case that power is not available from photovoltaic cells, feeding is switched automatically to commercial source.

## New product

Higher efficiency

Newcomers with full model change!

# pNSP2U-1000P series

Highly increased power, more compact

Continuous 430W > 800W      Length 400mm > 350mm  
Peak 550W > 1000W



1000W type is about to join pNSP2U series with Nipron's unique circuit technology "Primary Redundant system" embedded. With synchronous rectifying circuit adopted and improved, high efficiency, compact and higher power have been brought to meet customers' request.

### Products line-up

In addition to 330W peak and 550W peak power, high power 1000W peak type, that is 12V single output and ATX output type, joins this time featuring high efficiency and compact.

Category	Model name	Output type	Length (mm)	Output power (W) continuous/peak	Rectifying	Operation efficiency (%) 100V/240V
Existing	pNSP2U-330P	ATX	300	280/330	Diode	73/76
	pNSP2U-550P	ATX	400	430/550	Diode	74/77
New product	pNSP2U-1000P	ATX	350	800/1000	Synchronous rectifying	82/85
	pNSP2U-1000P	12V single output	350	800/1000	Synchronous rectifying	83/86

### Input/Output specification

#### ATX output type

AC input	85-264V (Worldwide input)					
Output voltage	+3.3V	+5V	+12V	-12V	+5VSB	
Max current/power (Continuous)	20A	20A	63.3A	0.5A	2A	
	66W	100W	759.6W	6W	10W	
	775.6W max					
Peak current/power (Within 5s)	21A	21A	66A	0.5A	2A	
	69.3W	105W	792W	6W	10W	
	982.3W max					
Min current	0A	0A	0A	0A	0A	
W x H x D (mm)	108 x 83.8 x 350					

#### 12V Single output type

AC input	85-264V (Worldwide input)	
Output voltage	+12V	+5VSB
Max current/power (Continuous)	66A	2A
	792W	10W
	802W max	
Peak current/power (Within 5s)	83A	2A
	996W	10W
	1006W max	
Min current	0A	0A
W x H x D (mm)	108 x 83.8 x 350	

### Other features



#### Erroneous operation prevention system and AC cable coming-off prevention wire

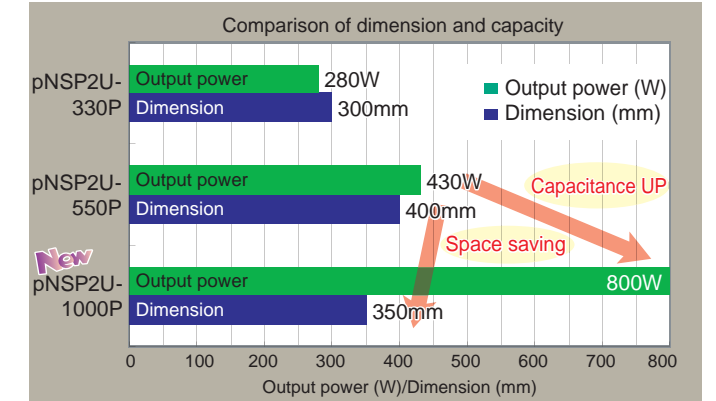
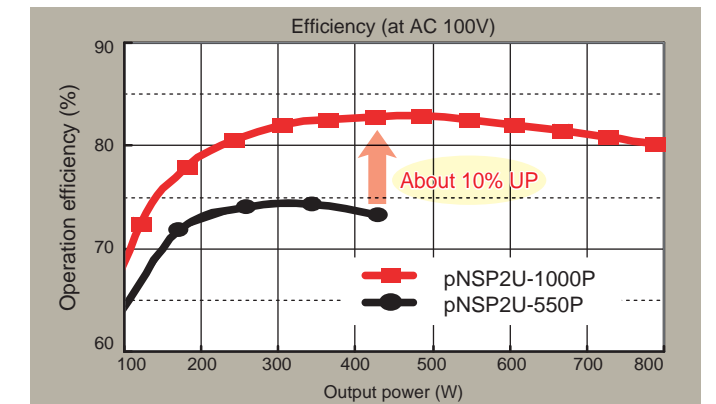
Operation error prevention function is installed at AC switch section so that you do not have to worry about turning off the power by mistake. Also, power cable will not come off by mistake as AC cable connection section has coming off prevention wire installed.

#### In case of unit failure

Even if one of the primary unit become failure, continuous operation with the other unit is available. Also, this redundant unit is hot-swappable in replacing the defective unit with non-defective one.

### High efficiency

With input unit circuit improved, and with high performance parts and synchronous rectifying circuit adopted, high efficiency is at your hand. Surprisingly, approx. 10% higher efficiency than existing models in addition to higher output power and compact design at a time.



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