

# Nipron Wave

## Vol.59



**This is the highlight**

**① Special feature of the new products**

A lot of fascinating products such as DIN-rail power supply and 1500 W peak power ATX power supply are introduced.

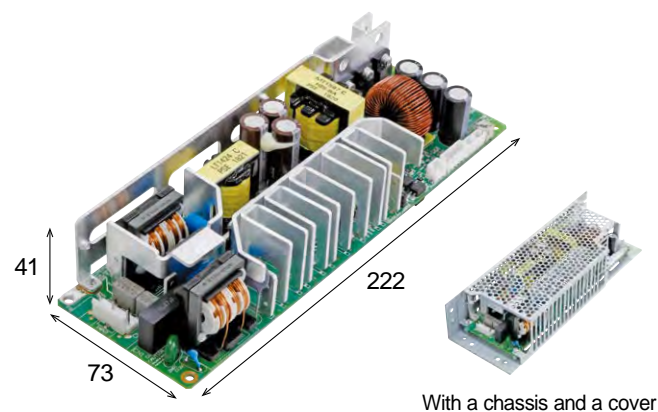
**② Special feature on in-house consumption of solar power**

Introducing “In-house consumption of PV power stored in battery system” that have various advantages compared with common in-house consumption.



# New product OZP-240/600P

The power supply featuring enhanced peak power



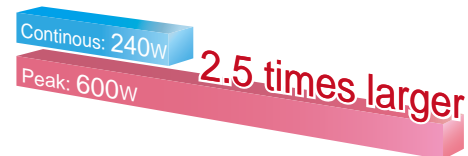
## Ideal for motor loads of transportation equipment and the like

The OZP-240/600P has attained the peak power of 600W with the continuous power of 240W, the peak power as high as 2.5 times the continuous power rating, with 200 VAC input. It is an optimum choice for motive loads, which require a large power for the start-up. It enables the system to adapt to the changing load, with the peak power of 600W handling the requirement for a large power and the continuous power of 240W supporting the steady operation. It is no longer necessary to select a PSU of large capacity to support the peak power, opening up the possibility of miniaturization and cost reduction.

Continuous: **240W\*** Output voltage: **24V/48V**  
Peak: **600W\*** Max. efficiency: **90%typ\***  
\*At 200 VAC input

### Features

- Amazing support for the high peak load approx. 2.5 times larger



- The power supply unit clears VCCI ClassB for the conducted emission
- With remote ON/OFF feature
- With blackouts detection signal
- Double-sided through-hole printed circuit board adopted
- A variable resistor for adjusting output voltage provided
- Instantaneous power failures can be addressed by connecting a capacitor unit or pack.



### Models with optional features can be arranged

Depending on the customers' needs, models with optional features can be arranged. Please consult us.

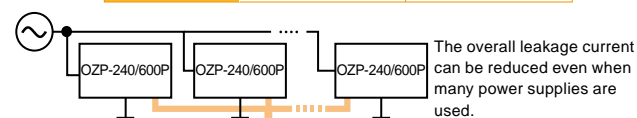
- Parallel operation feature
- Standby output
- Build-in arrester + varistor for enhanced resistance to lightning surges  
Common mode: actual performance  $\pm 8kV$
- Measures against instantaneous power failure (extension of hold-up time)
- Regenerative load supported

### Reduction of leakage current

As the number of PSUs increases, the leakage current will accumulate and could trip the earth leakage circuit breaker unexpectedly. With the low leakage current of OZP-240/600P, the total leakage can also be reduced even with multiple number of PSUs, making it easy to select an earth leakage circuit breaker.

### Leakage current characteristics (an example of measurement)

| Input voltage | Rated load | Min. load |
|---------------|------------|-----------|
| AC200V        | 0.19mA     | 0.23mA    |
| AC100V        | 0.09mA     | 0.11mA    |



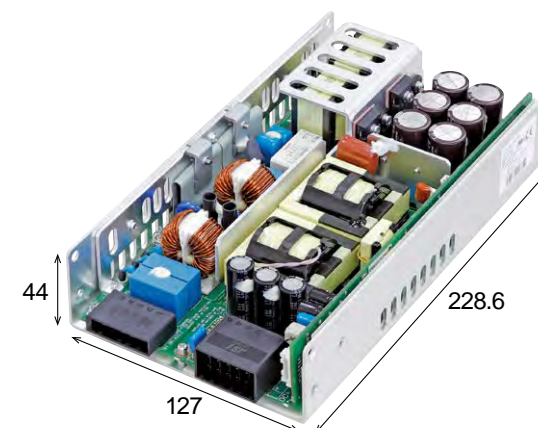
Low leakage current is achieved

### Input/output specifications

| Model  | OZP-240/600P-24   | OZP-240/600P-48  |
|--|---|------------------|
| Output voltage                                     | +24V  | +48V             |
| Max. current/<br>max. power (continuous)<br>200VAC | 10A<br>240W   | 5A<br>240W       |
| Peak current/<br>peak power (within 5 s)<br>200VAC | 25A<br>600W   | 12.5A<br>600W    |
| Max. current/<br>max. power(continuous)<br>100VAC  | 8.4A<br>201.6W  | 4.2A<br>201.6W   |
| Peak current/<br>peak power (within 5 s)<br>100VAC | 16.7A<br>400.8W   | 8.4A<br>403.2W   |
| Efficiency   | 200VAC<br>100VAC  | 90%typ<br>86%typ |
| Power factor                                       | 200VAC<br>100VAC  | 95%typ<br>99%typ |
| Input voltage                                      | 85-264VAC (with PFC, worldwide range)   |                  |
| Safety standards                                   | UL(cUL)60950-1, IEC62368-1, CE marking approved<br>PSE (ordinance item 2) compliant |                  |

# New product UZP-600 series

Fanless power supply unit supporting the peak power output of 1200 W



## Ultra high efficiency, low noise design The peak power, twice as high as continuous output

Building on the features of conventional models, such as ultra-high efficiency and low noise, an astonishing output level of 600 W continuous/1200 W peak has been realized for a fanless power supplies. The peak power twice as high as the continuous output power makes it an ideal PSU for motors. Its fanless construction reduces the risk of sucking in foreign matters and eliminates the need for maintaining the fan, ultimately enhancing the reliability of the device.

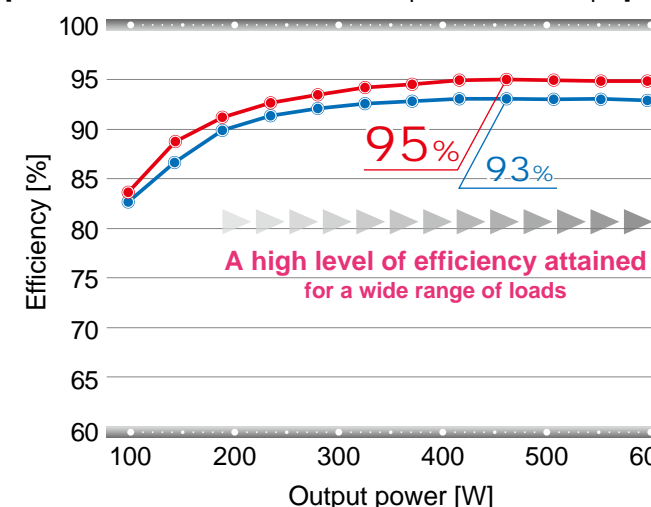
Continuous: **600W** Output voltage: **24V/48V**  
Peak: **1200W** Max. efficiency: **95%typ** (230VAC)

### One of the best in the industry in terms of efficiency

A high level of efficiency 95%typ has been achieved for a 24 V output type, providing a significant support for saving energy and reducing CO<sub>2</sub> emission.

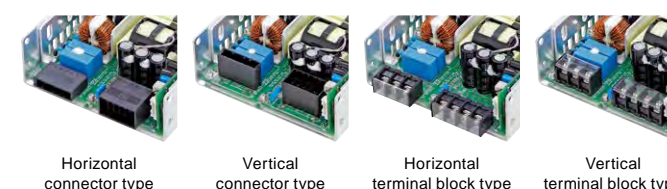
### Efficiency graph (an example of measurement)

[Measurement condition: —100VAC input —230VAC input]



### I/O terminal blocks for different scenes of use are available

The PSU comes with harmonica style terminal blocks or dividable nylon connectors as I/O terminals.



### The high peak power twice as high as the continuous power is supported

The unit can supply the power twice as large as the continuous power for the predefined time (5s). This eliminates the need to select a power supply unit with a large continuous power rating matching the peak load and enables the reduction in the PSU size, leading to many benefits including the elimination of fans in the unit and replacement of unit-type power supplies.

### Features

- Miniature size of 5 × 9 inches
- Comes with a +12 V standby output
- Blackout detection signal and remote ON/OFF feature incorporated
- Instantaneous power failures can be addressed by connecting a capacitor unit
- The built-in arrester to avoid/mitigate the risk of lightning damage  
Common mode: actual performance  $\pm 8kV$
- Models certified for medical standards will also be added
- Notification of service life expiration supported (optional)  
Notify the deterioration of electrolytic capacitor by H/L signal and LED.
- With a +12V output (optional) linked with the remote ON/OFF for the fan



### Input/output specifications

| Model  | UZP-600-A24   | UZP-600-A48     | Common output |                     |
|--|---|-----------------|---------------|---------------------|
| Output voltage   | +24V  | +48V            | +12VSB        | +12V FAN (Optional) |
| Continuous current/<br>continuous power<br>(Natural air cooling) | 25A<br>600W   | 12.5A<br>600W   | 0.42A<br>5W   | 0.25A<br>3W         |
| Continuous current/<br>continuous power<br>(Forced air cooling)  | 33.4A<br>801.6W   | 16.7A<br>801.6W | —             | —                   |
| Peak current/<br>peak power<br>(within 5 s)                      | 50A<br>1200W  | 25A<br>1200W    | —             | —                   |
| Input voltage  | 85 - 264 VAC (with PFC, global input)                                   |                 |               |                     |
| Safety standards   | UL(cUL)62368-1, CE marking approved<br>PSE (ordinance item 2) compliant |                 |               |                     |

Amazing number of rollers are driven with its high peak output despite its small size

<http://www.nipron.com>

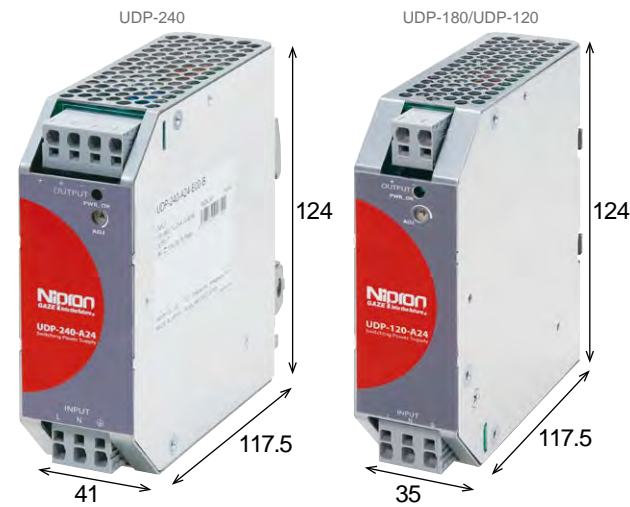
Highly efficient design reduces heat generation and increases equipment reliability.

<http://www.nipron.com>



# New product UDP series

DIN-rail compatible,  
unit type power supply



The thin module design  
enables miniaturization of  
control panels to save space

## UDP-240-A24

New

Continuous: **240W** Output voltage: **24V**  
Peak: **400.8W** Max. efficiency: **94%typ\***

## UDP-180-A24

Under development

Continuous: **180W** Output voltage: **24V**  
Peak: **201.6W** (100VAC) Max. efficiency: **93%typ\***  
**300W** (200VAC)

## UDP-120-A24

Under development

Continuous: **120W** Output voltage: **24V**  
Peak: **201.6W** (100VAC) Max. efficiency: **92%typ\***  
**300W** (200VAC) \*An example with 230VAC input

## Selectable input/output connector type

The PSU comes with European terminal type or Block terminal type as I/O terminals.

### European terminal type



Output side

Input side

### Block terminal type

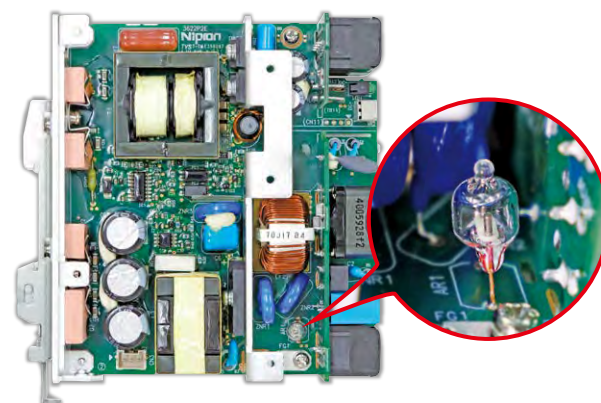


Output side

Input side

## The build-in arrestor enhances the resistance against lightning surges

By incorporating an arrestor as a surge protector, the resistance to external surges due to lightning or other causes has been enhanced.

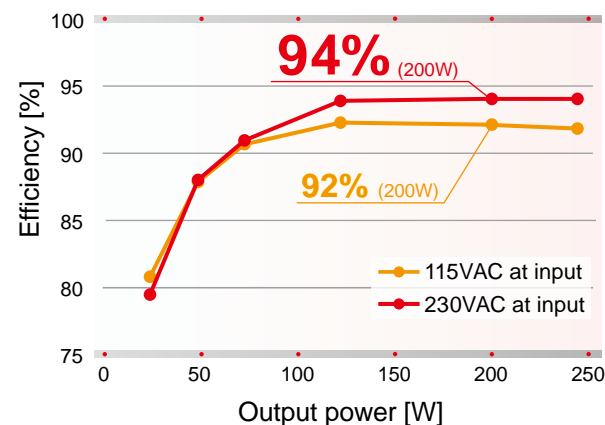


Common mode:  
actual performance  $\pm 8kV$

## High efficiency, long life design

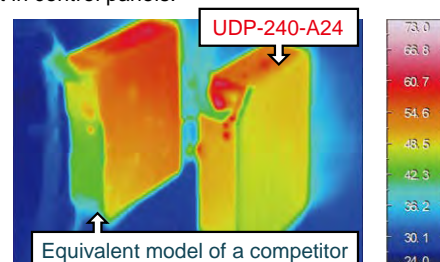
Software switching is adopted in the UDP series. Compared to conventional hardware switching, it suppresses heat generation due to the switching loss significantly, enabling miniaturization of built-in components. This makes it possible to produce smaller and more efficient power supply units.

### Max. efficiency of 94% (an example of measurement, UDP-240-A24)



### Limits temperature rise and supports miniaturization and extension of service life

Because the heat generation due to switching loss has been reduced drastically by attaining the high efficiency, the series makes it possible to reduce the man-hour and cost in addressing the heat in control panels.



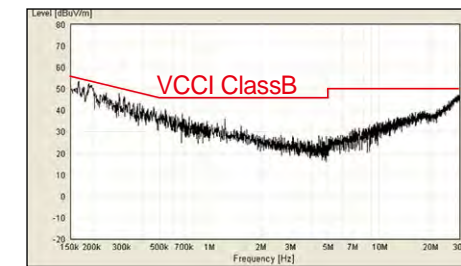
Thin, low-heat-generation design results in a space-saving control panel

<http://www.nipron.com>

## Reduction of noise filters possible

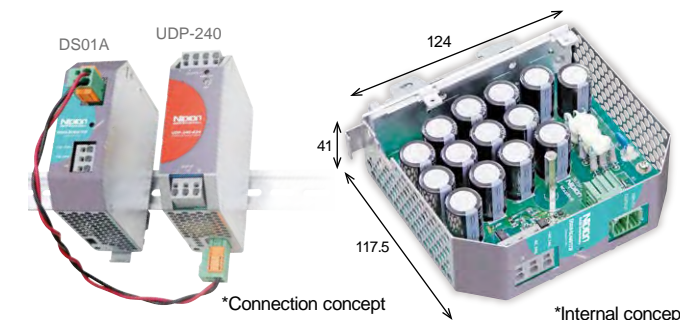
The power supply unit clears VCCI ClassB for the conducted emission. Because there is no need to install an external noise filter, it facilitates reductions in the cost and man-hour.

### Conducted emission characteristics (UDP-240-A24, 100VAC)



## Instantaneous power failure and blackout backup units are now available.\*

\*Please check the features list below for the supported power supply.



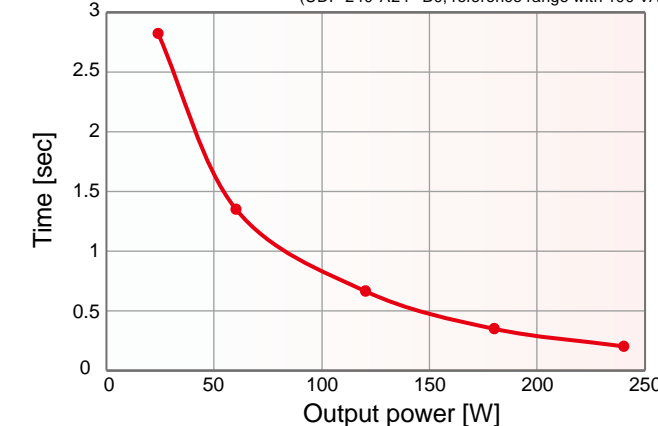
### DS01A-EC400/172F

Capacitor unit

Instantaneous power failures can be addressed by connecting a capacitor unit.

### Backup discharge characteristics

(UDP-240-A24-\*B0, reference range with 100 VAC)



■ Since DS01A, DS02A are under development, the specifications and appearance shown here may change without notice.

## Product outline

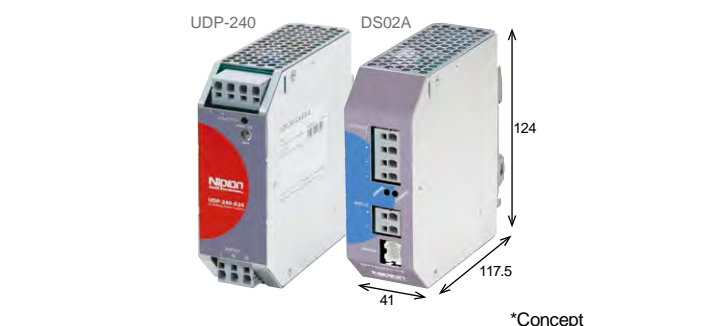
### Output specifications

| Model                       | UDP-240-A24  | UDP-180-A24 | UDP-120-A24 |
|-----------------------------|--|-------------|-------------|
| Output voltage              | +24V   | +24V        | +24V        |
| Continuous power            | 240W   | 180W        | 120W        |
| Peak power (10s) 100/200VAC | 400.8W   | 201.6W/300W | 201.6W/300W |
| Efficiency                  | 115VAC   | 92%typ      | 91.5%typ    |
|                             | 230VAC   | 94%typ      | 93%typ      |
| Power factor                | 115VAC   | 99%typ      | 99%typ      |
|                             | 230VAC   | 91%typ      | 89%typ      |
| Input voltage               | 85-264VAC (with PFC, worldwide range)  |             |             |
| Safety standards            | UL(cUL)62368-1, UL508, CE marking approved<br>PSE (ordinance item 2) compliant |             |             |

\*UDP-180 and UDP-120 are compliant.

## Features

- Wide operating temperature range from -20°C to 70°C (derating required)  
Even if the temperature inside the control panel is high, mechanism design with high degrees of freedom is possible.
- Available to start-up at -40°C environment
- The PCB is coated as standard specification
- Equipped with a variable resistor for adjusting output voltage
- Notification of service life expiration supported (optional)  
Notify the deterioration of electrolytic capacitor by H/L signal and LED.
- Possible to support SEMI F47
- EN62477-1 OVC III compliant design



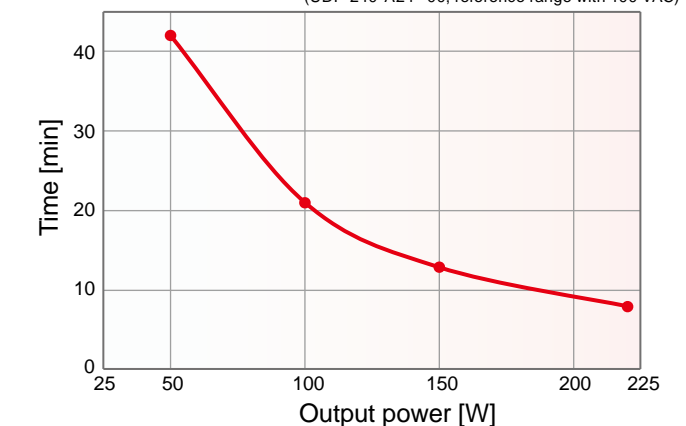
### DS02A-L24/2.5L

Lithium-ion battery unit

Blackout backup without instantaneous interruption can be achieved by connecting a battery unit.

### Backup discharge characteristics

(UDP-240-A24-\*00, reference range with 100 VAC)



### Features

| Model           | European terminal type | Block terminal type | Capacitor unit | Battery unit | Notification of service life expiration |
|-----------------|------------------------|---------------------|----------------|--------------|---|
| UDP-***-A24-E00 | ○                      | -                   | -              | ○            | -                                       |
| UDP-***-A24-T00 | -                      | ○                   | -              | ○            | -                                       |
| UDP-***-A24-E0X | ○                      | -                   | -              | ○            | ○                                       |
| UDP-***-A24-T0X | -                      | ○                   | -              | ○            | ○                                       |
| UDP-***-A24-EB0 | ○                      | -                   | ○              | ○            | -                                       |
| UDP-***-A24-TB0 | -                      | ○                   | ○              | ○            | -                                       |
| UDP-***-A24-EBX | ○                      | -                   | ○              | ○            | ○                                       |
| UDP-***-A24-TBX | -                      | ○                   | ○              | ○            | ○                                       |

Rely on Nipron for solutions to blackouts and instantaneous power failures.

<http://www.nipron.com>



# AC-DC switching-mode single output power supply units lineup

## Choose the ideal power supply for your device needs.

Nipron's power supplies are products with a reliability and functionality oriented design. Variety of products suitable for different applications are included in the lineup.

### UDP series

#### UDP-120 Under development

Continuous 120W  
(With 100 VAC) (With 200 VAC)  
Peak 201.6W 300W  
+24V

#### UDP-180 Under development

Continuous 180W  
(With 100 VAC) (With 200 VAC)  
Peak 201.6W 300W  
+24V

#### UDP-240 NEW

Continuous 240W  
Peak 400.8W  
+24V

### OZ/OZP/UZP series

#### OZ-015

Continuous 9.9 - 16.8W  
+3.3V +5V +12V +15V +24V

#### OZ-030

Continuous 19.8 - 31.2W  
+3.3V +5V +12V +15V +24V

#### OZ-060

Continuous 39.6 - 60W  
+3.3V +5V +12V +15V +24V

#### OZP-120

Continuous 120 - 122.4W  
Peak 180 - 216W  
+12V +12V/15V<sup>1</sup> +24V  
+30V/36V<sup>1</sup>

#### OZP-170

Continuous 168W  
Peak 270 - 300W  
+12V/15V<sup>1</sup> +24V

#### OZP-200

Continuous 132 - 201.6W  
Peak 198 - 403.2W  
+3.3V +5V +12V +15V +24V  
+30V/36V<sup>2</sup> +48V

#### OZP-240/600P NEW

(With 100 VAC) (With 200 VAC)  
Continuous 201.6W 240W  
Peak 400.8W 600W  
+24V +48V

#### OZP-350

Continuous 300 - 352.8W  
Peak 504 - 601W  
+12V +15V +24V +30V +36V  
+48V

#### UZP-120

Continuous 100.8 - 120W  
Peak 200.4 - 201.6W  
+12V +24V

#### UZP-150

Continuous 150 - 153.6W  
Peak 400.8 - 401.4W  
+12V +18V +24V +48V

#### UZP-220

Continuous 180 - 220.8W  
Peak 400.8 - 401.4W  
+12V +18V +24V +48V

#### UZP-600 NEW

Continuous 600W  
Peak 1200W  
+24V +48V

<sup>1</sup> Output select type <sup>2</sup> The 36V output may be used as a 30V power supply by adjusting the volume.

### GPSA series

#### GPSA-360

Continuous 360W  
Peak (With 100 VAC)  
480 - 499.2W  
(With 200 VAC)  
480 - 600W  
+12V +24V

#### GPSA-600

Continuous 600W  
Peak (With 100 VAC)  
960 - 1200W  
(With 200 VAC)  
1200 - 1440W  
+12V +24V +36V +48V

#### GPSA-1000

Continuous (With 100 VAC)  
907.2W  
(With 115 VAC)  
1008W  
Peak (With 100 VAC)  
1188W  
(With 115 VAC)  
1320W  
(With 240 VAC)  
2016W  
+24V +48V

#### GPSA-1500

Continuous (With 100 VAC)  
1056 -  
1104W  
(With 200 VAC)  
1512 -  
1632W  
Peak (With 100 VAC)  
1320W  
(With 200 VAC)  
2040 - 2112W  
+24V +48V

#### GPSA-5000

Continuous 4800 - 4992W\*  
Peak 6000W\*  
+48V +96V

\* With 3-phase 180-240 VAC input

Excellent track record! A product line with a variety of models available

<http://www.nipron.com>

# Medical standard certified single output power supply units lineup

### m-series (medical standard approved)

#### mUZP-120

IEC60601-1  
Ed.3.1 (MOOP)

Continuous 100.8 - 120W  
Peak 200.4 - 201.6W  
+12V +24V

#### mUZPT-120

IEC60601-1  
Ed.2  
Ed.3.1 (MOOP)  
Ed.3.1 (MOPP)

Continuous 100.5 - 120W  
Peak 200.4 - 201.6W  
+12V +15V +24V

#### mUZP-150

IEC60601-1  
Ed.2  
Ed.3.1 (MOOP)  
Ed.3.1 (MOPP)

Continuous 150 - 153.6W  
Peak 400.8 - 401.4W  
+12V +18V +24V +48V

#### mUZP-220

IEC60601-1  
Ed.2  
Ed.3.1 (MOOP)  
Ed.3.1 (MOPP)

Continuous 180 - 220.8W  
Peak 400.8 - 401.4W  
+12V +18V +24V +48V

#### mOZP-200

IEC60601-1  
Ed.3 (MOOP)

Continuous 132 - 201.6W  
Peak 198 - 403.2W  
+3.3V +5V +12V +15V +24V  
+30V/36V +48V

#### mOZP-350

IEC60601-1  
Ed.2  
Ed.3.1 (MOPP)

Continuous 300 - 352.8W  
Peak 504 - 601W  
+12V +15V +24V +30V +36V  
+48V

#### mGPSA-360

IEC60601-1  
Ed.2  
Ed.3 (MOOP)

Continuous 360W  
Peak 480 - 600W  
+12V +24V

#### Protective measures

- Protective measures for the operator:  
MOOP Means of Operator Protection  
⇒ Protective measures to reduce the risk of electric shock to people other than the patient
- Protective measures for the patient:  
MOPP Means of Patient Protection  
⇒ Protective measures to reduce the risk of electric shock to the patient

\*The 36V output may be used as a 30V power supply by adjusting the volume.

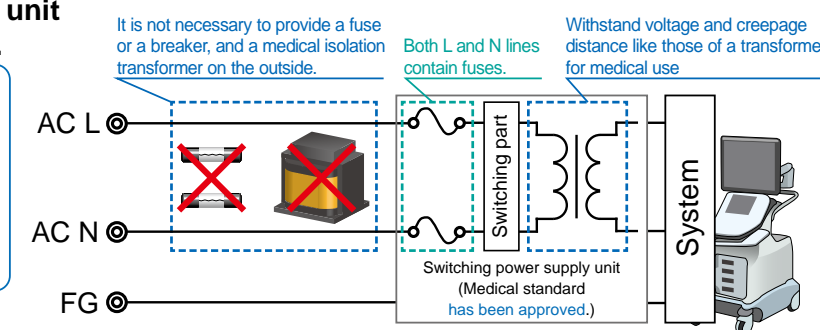
## Benefits of using certified power supplies in medical equipment

In order to obtain certification of compliance with a medical standard, a company must apply to a certification agency and undergo an examination. If one of that company's products includes a power supply that has not yet been certified as conforming to the standards for medical electrical equipment, the power supply undergoes testing that entails high costs and a very long waiting period from submission of the application until certification is obtained. If the product incorporates a power supply that has been certified as conforming to the standards for medical electrical equipment, testing of the power supply is essentially unnecessary, resulting in a reduction in the application period and application costs. To be clear, a power supply listed as certified according to the medical standard must incorporate features such as integrated fuses in both the L and N lines, compatibility with reinforced insulation, and low leakage current characteristics. This eliminates the need for preparation of expensive separate medical isolation transformers, fuses, and breakers, resulting in low-cost, secure, and safe medical electrical equipment.

### In the case that a power supply unit has obtained medical standard.

It is not necessary to provide separately a fuse, a transformer, etc.

The system becomes miniaturized and less expensive.

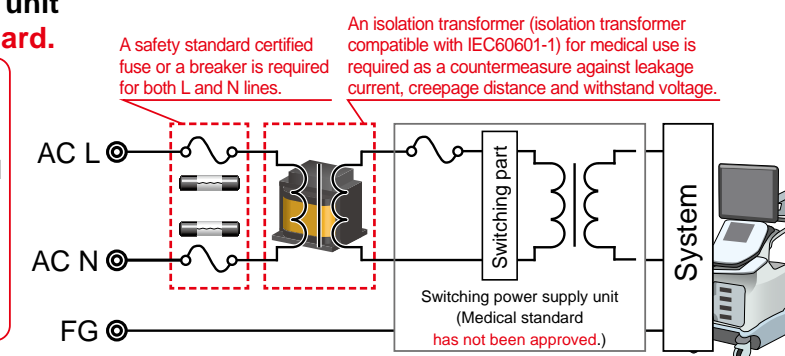


### In the case that a power supply unit has not obtained medical standard.

It is necessary to provide separately a fuse, a transformer, etc.

A fuse and a transformer shall be installed separately from a power supply unit.

The system becomes enlarged and more expensive.



The necessities for electrical equipment for medical use, m series

<http://www.nipron.com>



# New product HPCSA-1500P-E2S

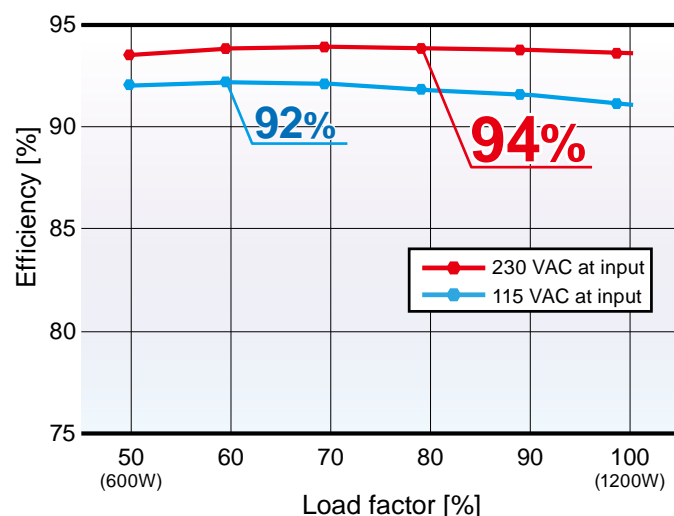
Large capacity ATX PSU  
suitable for GPU server



One of the best in the industry in terms of efficiency

HPCSA-1500P is designed to attain the highest efficiency with a high load factor of 50% to 100% and enables highly reliable and stable operation of GPU servers, constantly running under a high load, as in the application of deep learning.

Efficiency graph (an example of measurement)



Low sound noise by adopting a temperature controlled variable-speed fan.

When internal temperature of a power supply unit is low, fan speed is reduced to achieve low sound noise and save energy. In addition, operation settings is possible according to the usage environment and purpose, such as a semi-fanless mode in which the fan turns when the internal temperature rises, and a forced maximum turn mode in which the fan always turns at the maximum speed for cooling.

## Reliable products built to provide continuous service, 24/7/365

The HPCSA-1500P-E2S is a large capacity ATX power supply unit optimum for a system with a multiple number of high-end GPUs, such as a GPU server, with its 6ch 12V outputs for CPU/GPUs. With the long life design of 10 year or longer life expectancy, it offers a high performance in applications where a high reliability and excellent durability are desired.

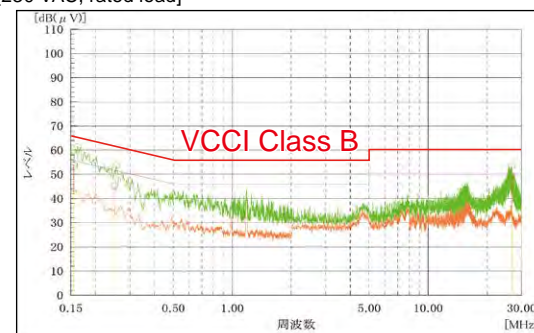
Continuous: **1200W**

Peak: **1500W** Max. efficiency: **94%<sub>typ</sub>** (AC230V)

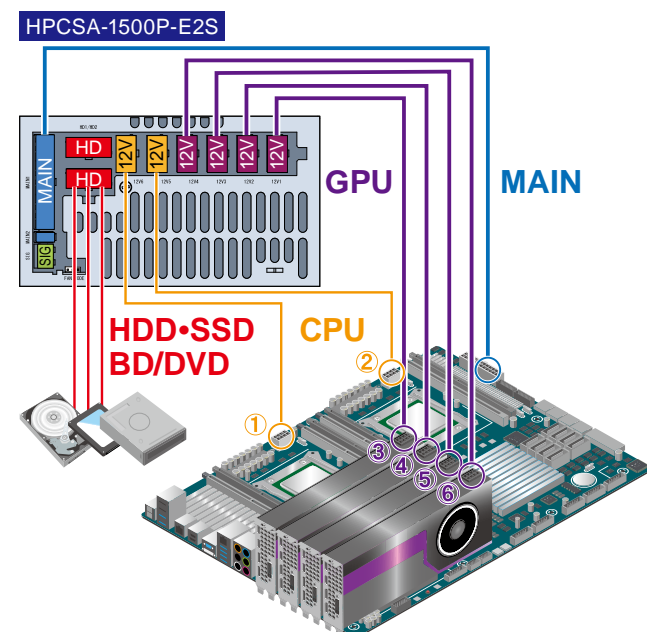
### Low noise

With the enhancement of noise filter circuits and optimization of component arrangement, the conducted emission for the power supply unit alone clears VCCI Class B. Elimination of an external noise filter makes it possible to reduce the cost and man-hour.

[230 VAC, rated load]



### GPU server configuration example

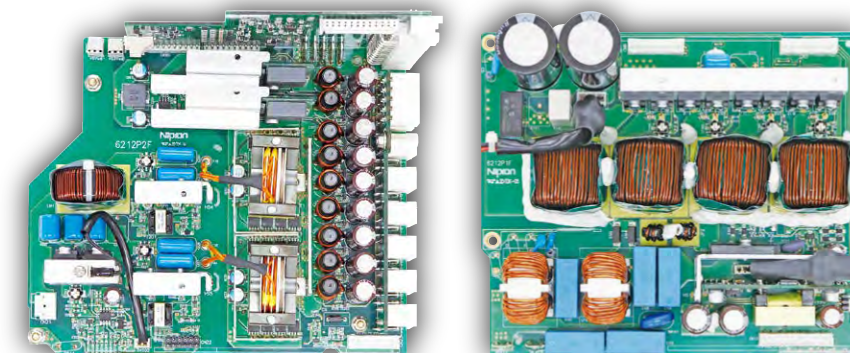


Supports the 6ch 12 V outputs for CPU/GPU

# MADE IN JAPAN

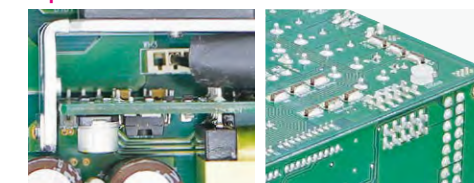
## Particular layout design to realize high quality and high reliability

PC power supply units made in foreign countries are available at a very low cost. In recent years, the number of high efficiency products has increased signifying the increase in the number of high performance products, on the surface at least. However, there are many products with design problems in the internal component layout making them unfit for extended operation. It is assumed that there are many customers with bitter experiences with PSU troubles. There are many PSUs that are discontinued shortly after their introduction in the market, making it difficult to purchase the same model even if the unit fails. With Nipron products, customers' worries can be solved with the reliability and long-term availability based on the production in Japan. The difference in the reliability is apparent if one takes a peek into the interior of PSU. Please do check the difference in the interior design.



### Difference 1 [Circuit boards]

Nipron HPCSA-1500P-E2S



Highly reliable double sided through-hole printed circuit boards are used for every circuit to prevent cracking on solder joints.

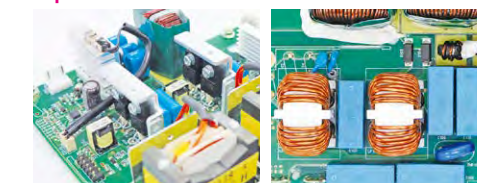
Examples of imported ATX power supplies



Single sided boards are found in some circuits, such as moving parts at the inlet, and there is a risk of solder joint cracking.

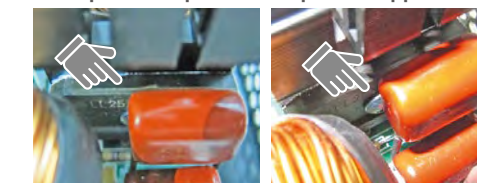
### Difference 2 [Temperature condition]

Nipron HPCSA-1500P-E2S



Components with a low rated temperature are not arranged in the perimeter of high temperature components, realizing a safe power supply unit.

Examples of imported ATX power supplies



A film capacitor leans against a high temperature diode, raising a concern of a failure of film capacitor due to high temperature and even a risk of burning.

### Difference 3 [Parts arrangement]

Nipron HPCSA-1500P-E2S



The design includes an arrangement with room between components, avoiding stresses on neighboring parts.

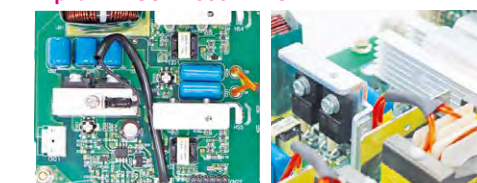
Examples of imported ATX power supplies



Cords and parts push neighboring parts, giving stresses, and early degradation with time of parts and other problems are expected.

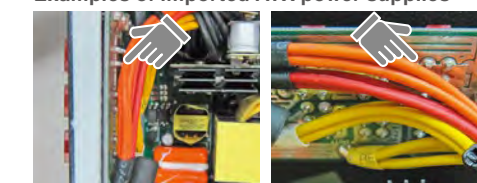
### Difference 4 [Safety measures]

Nipron HPCSA-1500P-E2S



Considerations are given to avoid interference between leads and wires and, if they come in contact, to provide safety measures.

Examples of imported ATX power supplies



The leads to the output connectors come in contact with shielded wires, raising a concern of damaging the wires and a risk of short circuits.

Large capacity ATX PSU with excellent reliability suitable for deep learning

<http://www.nipron.com>

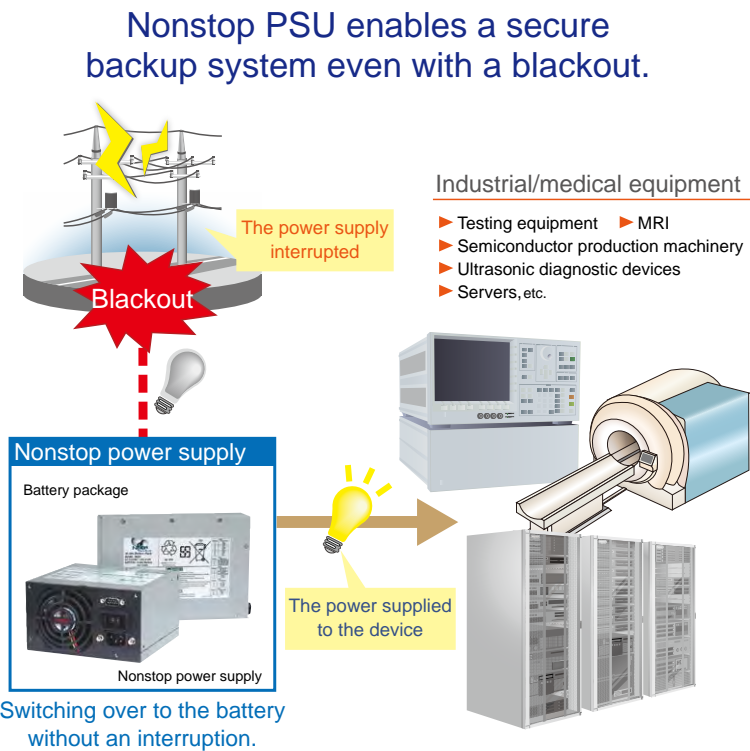
High reliability design enables continuous running  
24 hours a day, 365 days a year

<http://www.nipron.com>



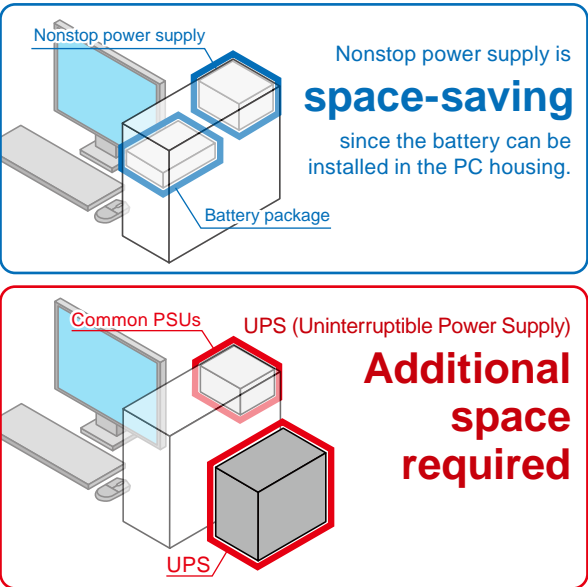
# Use a Nonstop power supply to build a secure system that does not stop running with a blackout.

While Nipron's Nonstop power supply (PC power supply with UPS) takes the power from the AC power supply line in normal condition, whenever the AC power supply voltage drops or fails, it switches to the battery power with no instantaneous interruption to enable a secure backup system without damaging the system.



## Space-saving

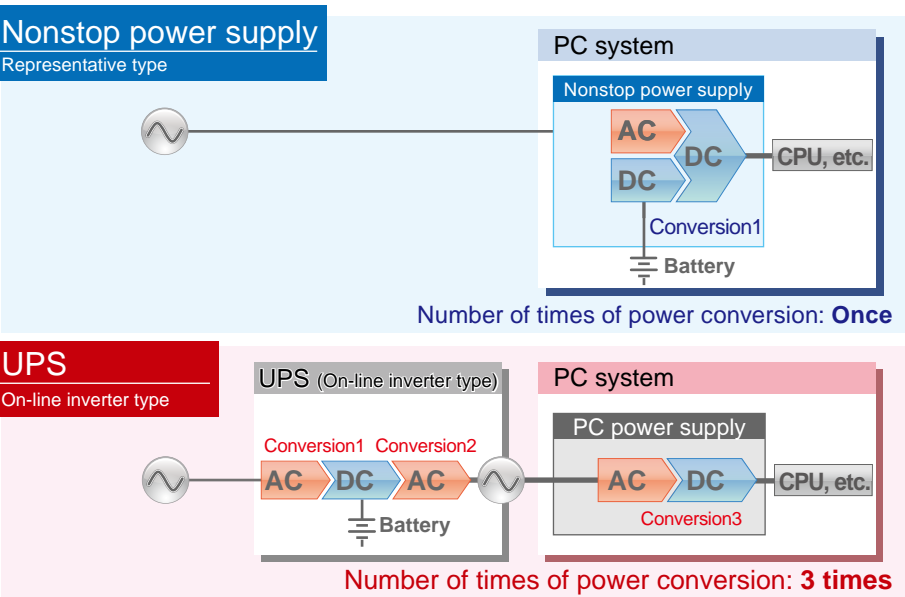
Because the battery package can be contained in the PC housing, more space can be saved compared to commonly found UPS.



## Improved efficiency

An UPS of on-line inverter type performs a power conversion three times during normal operation and twice during a blackout. Nipron's Nonstop power supply, however, manages the power conversion in a single operation in both normal operation and operation during a blackout, saving energy in comparison with an UPS.

Simplified schematic diagram of Nonstop power supply and UPS power conversion



## Improvement of reliability

While UPS supplies power in series connection to a PC system, in a configuration using a Nonstop power supply which connects a Nonstop power supply with a battery in a PC system, AC line and DC line from a battery are connected parallelly, which results in low failure rate and improved reliability.

## Problem of unstable operation is resolved.

Since cheap UPS causes a lot of square wave outputs, if a power supply unit equipped with PFC is connected, it is in danger of sounding or unstable operation. There was also a case that UPS misrecognized waveform distortion of input voltage as blackout, switched to battery operation and shut down PC. In a Nonstop power supply, an original blackout backup circuit resolves absolutely such problems.

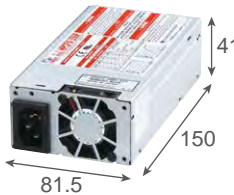
**Various Nonstop power supplies depending on the requirements of application such as external dimension and power capacity are offered.**

## HPCFX-350P-X2B **NEW**

**Small, large capacity Flex ATX power supply**

- Nickel metal-hydrate battery, BS28A can be connected
- High efficiency with the max. efficiency of 88.5%
- The power supply unit alone clears VCCI classB
- 100% output at 50°C

Continuous **245W**  
Peak **346W**



## HPCSF-400P-X2B **NEW**

**Small, large capacity SFX power supply**

- Nickel metal-hydrate battery, BS28A can be connected
- High efficiency with the max. efficiency of 88.9%
- The power supply unit alone clears VCCI classB
- The adoption of a temperature controlled variable-speed fan

Continuous **310W**  
Peak **400W**

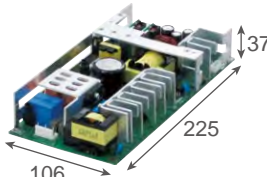


## HPCFL-400P-X2S

**1U size high efficiency fanless PC power supply**

- Nickel metal-hydrate battery, BS28A can be connected
- The power supply unit alone clears VCCI classB

Continuous **170W**  
Forced air cooling **305W**  
Peak **400W**



## HNSP4-1000P series

**Large capacity ATX PSU with 1000 W peak power**

- High efficiency 90%typ (at 240 VAC input, 60% load)
- Minimum load current 0A for all outputs specification

Continuous **822W**  
Peak **1000W**



## mHNSP4-1000P series

**Medical standard compliant large capacity ATX PSU IEC60601-1 Ed.3(MOOP)**

- Minimum load current 0A for all outputs specification

Continuous **822W**  
Peak **1000W**

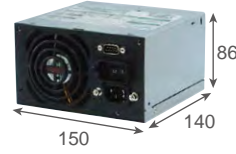


## HNSP9-520P series

**Additional +24 V/+48 V output equipped models are also selectable.**

- 80 PLUS BRONZE acquired
- Minimum load current 0A for all outputs specification

Continuous **400W**  
Peak **520W**



## mNSP3-450P series

**Medical standard compliant large capacity ATX PSU with outstanding track record IEC60601-1 Ed.2, Ed.3(MOPP)**

- Low leakage current 0.3 mA or less.

Continuous **301W**  
Peak **450.5W**



## eNSP3-450P series

**ATX PSU with the No.1 track record both in Japan and the world**



Continuous **350W**  
Peak **450.5W**  
Size (WxHxD) 150x86x140

## eNSP-300P series

**The bestseller with outstanding reliability and track record**



Continuous **203.6W**  
Peak **303.6W**  
Size (WxHxD) 150x86x155

## NSP6F-220P-S10

**Palm-size PSU of SFX12V form factor**



Continuous **160W**  
Peak **220W**  
Size (WxHxD) 100x63.5x145

## eNSP4-500P series

**1-sec backup PSU for instantaneous power failures**



Continuous **350W**  
Peak **500.5W**  
Size (WxHxD) 150x86x140

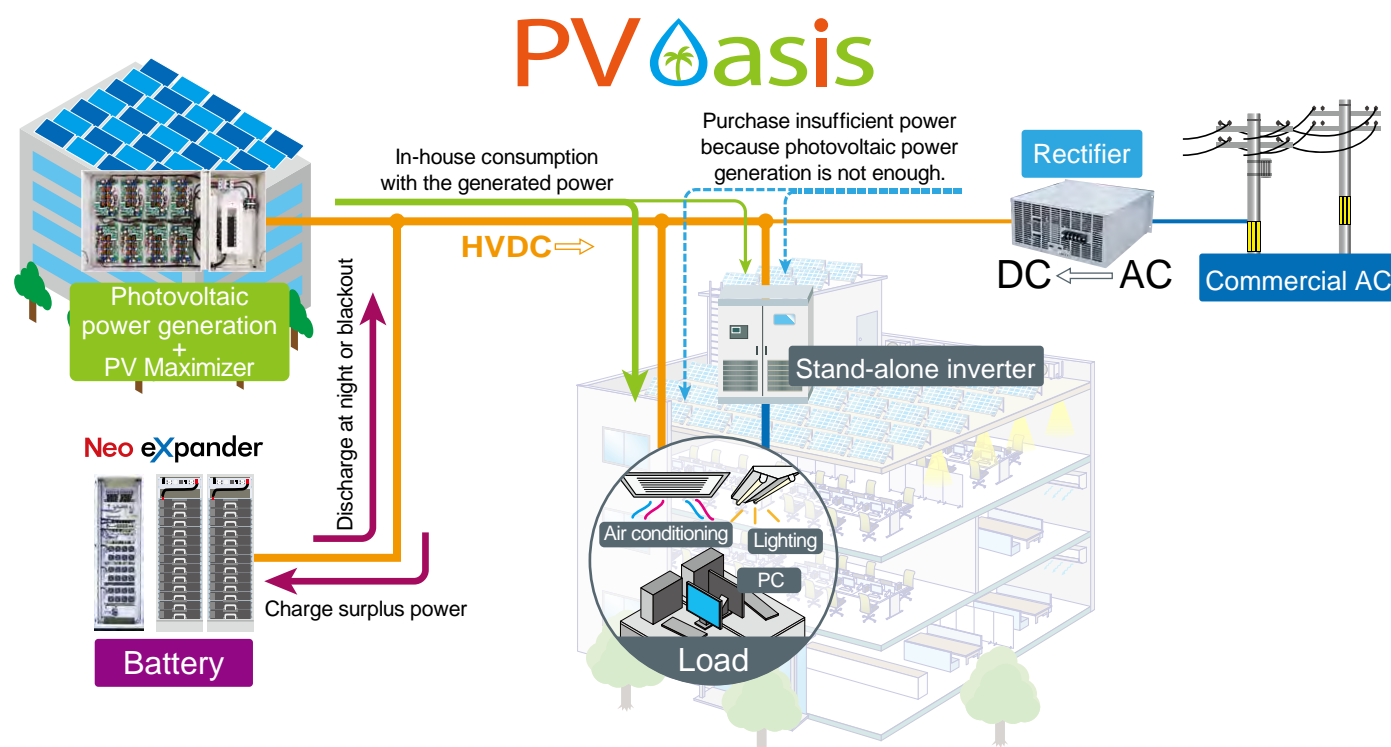




Generating power instead of purchasing it,  
and using that power instead of selling it  
—join the shift to consuming self-generated power.

Using solar power generated right  
on your own premises —

The in-house power consumption of PV power stored in battery system proposed by Nipron  
Offers a variety of advantages over ordinary in-house power consumption systems



### 1 | Easy installation

No grid connection is needed.  
It will save the time you need for a  
discussion on the grid connection.

### 3 | Reduce the cost

The costs for a discussion on the  
grid connection and RPR can be reduced.

### 5 | Heat shielding effects for rooftop

PV panels can also work as heat shield plate  
when they are installed on the rooftop.

### 2 | BCP/Enhanced resilience

Blackout backup is possible  
without an interruption at blackout.

### 4 | Environmental contribution, corporate value improvement

It is possible to show attitude that  
proactively working on environmental issues  
from the perspective of CSR.

### 6 | Tax incentives can be used

Subsidies and tax incentives are available.

The in-house consumption of PV power stored in battery  
“PV Oasis” have many advantages of introduction.

<http://www.nipron.com>

## The in-house consumption of PV power stored in battery PV Oasis

The in-house consumption of  
PV power stored in battery

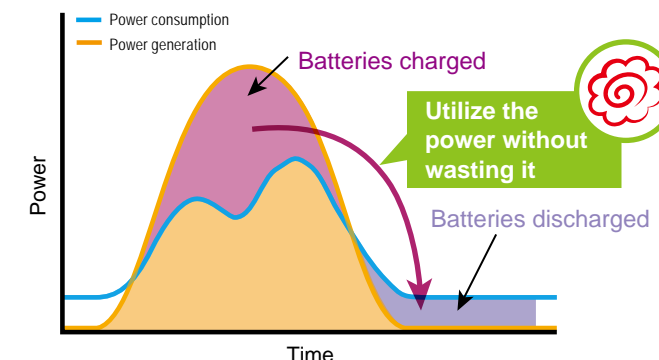
It is possible to utilize the power generation fully.  
Surplus power is charged to battery.

“PV power + Battery” will enable a stable  
operation without the influence of weather.  
Moreover, the power will be backed up with  
no interruption in an event of a blackout.

The use of a stand-alone inverter will make  
the PCS unnecessary and economical.

There is no inverse current because the grid connection  
is not provided. RPR is not necessary and economical.  
An elaborate discussion on the grid connection is  
also unnecessary.

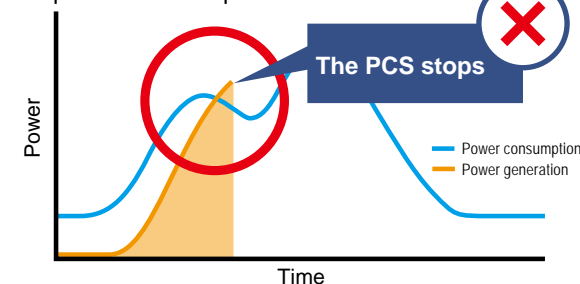
Operational concept



### I. Introduce a device to prevent the inverse current (RPR).

While the inverse current will not occur, the PCS will stop if  
the power generation becomes excessive and it will take time  
to restore it. Also, the cost of RPR installation is expensive.

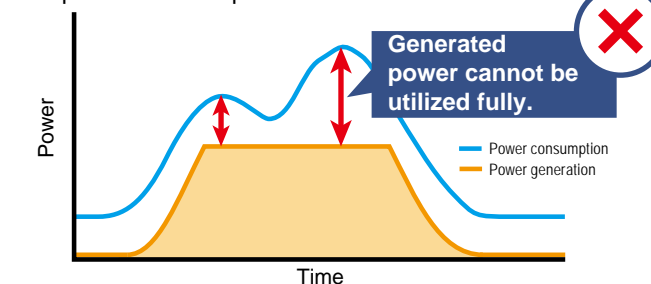
Operational concept



### II. Limit the power generation at or below the base power

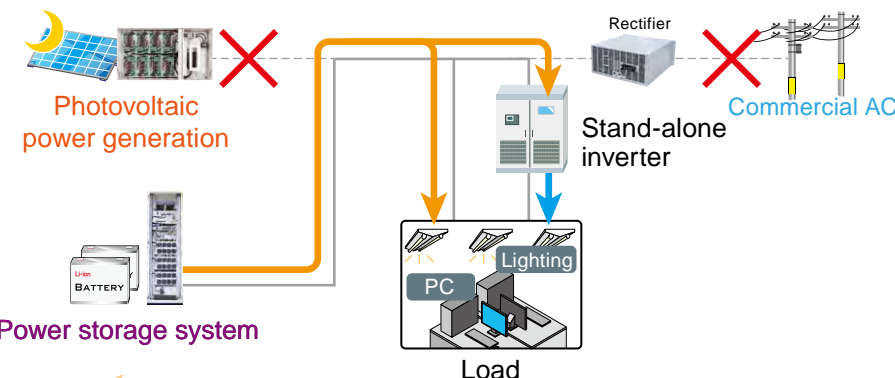
If the power generation is limited at or below the base power  
consumption to avoid the inverse current, enough panels cannot be  
installed and it is difficult to utilize generation power fully.

Operational concept

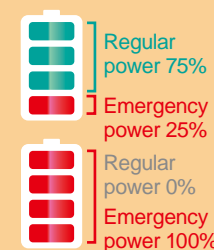


## It is optimal for BCP support. PV Oasis

In an event of a disaster, the PV  
Oasis can supply the power from a  
PV power generation system or a  
battery with no instantaneous  
interruption. By putting aside a part  
of the battery system for  
emergencies, the PV Oasis is also  
optimum as an action for BCP,  
helping corporates to enhance their  
operational resiliency.



It is possible to assign the emergency battery power  
with a remote control.\*



Minimize the emergency  
power if the weather was  
stable.

Set aside all the power  
for emergencies  
because a typhoon is  
approaching.

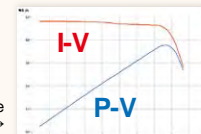


With the PV Guardmyan, it is  
possible to assign the  
emergency battery power  
arbitrarily with a remote  
control.

**PV Guardmyan**

It is a remote monitoring system capable of  
high-precision monitoring string by string with the  
use of I-V characteristic curve. It also supports  
remote monitoring and adjustment of power  
storage systems. By offering a comprehensive  
monitoring of entire  
system, it enables the  
user to cut down on the  
maintenance cost.

I-V characteristics curve  
at normal time→



\*to be supported

Meeting a variety of customer needs with PV Oasis

<http://www.nipron.com>



# Invitation to exhibition

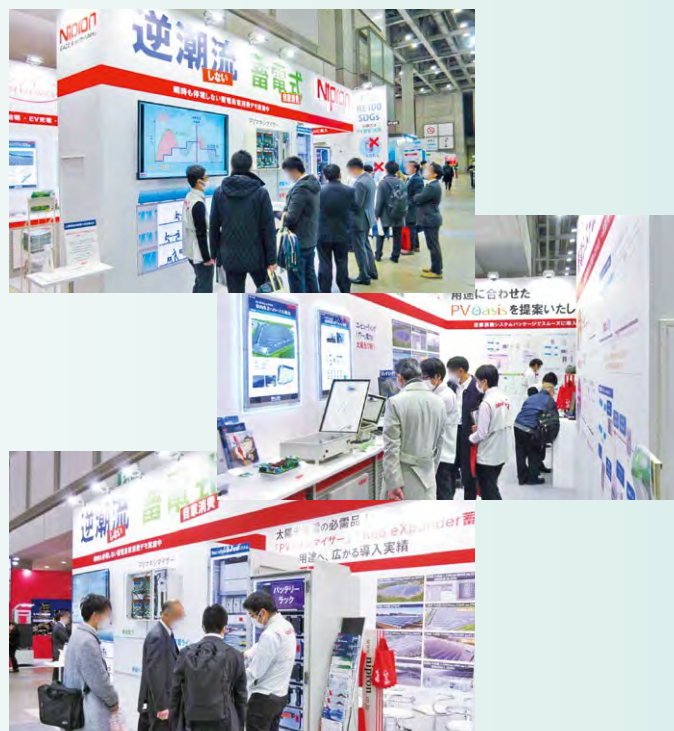
## Participated in the 10th INT'L SMART GRID EXPO

Nipron has participated in the 10th INT'L SMART GRID EXPO, which was held for three days from 26th to 28th of February at Tokyo Big Sight. This EXPO is an international exhibition that offers an opportunity for making deals by collecting every product and technology required for building smart grids.

Today, it is more economically advantageous to "consume" generated power than "sell" it and, with the experiences of recent large-scale blackouts caused by earthquakes and typhoons, the in-house consumption of power is gaining people's attention. For this reason, the Nipron's booth offered a visualized demonstration for the flow of storing power and consuming it in-house with the PV Oasis, the in-house power consumption of PV power system. It also featured the Neo eXpander, a charging/discharging rack for medium to large-scale power storage systems, that is now capable of monitoring the battery capacity remotely and may also be used for storing surplus power and as a part of emergency response plan.

**PV Oasis**

See the page 11 for details.

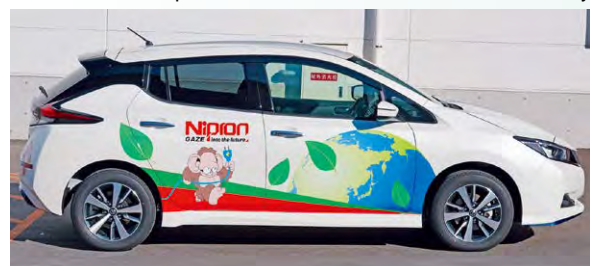


# Nipron's approach for decarbonization

## An electric vehicle is introduced as a company car.



Rooftop of head office and Hanshin dream factory



Nissan LEAF

Currently, the world is starting to act to achieve the targets of RE100 and SDGs to solve environmental issues.

In order to protect the environment, Nipron undertakes activities to enhance the efficiency and extend the service life of its PSUs, proposes and sells the PV Maximizer, which maximized the power obtained by the PV power generation, and the PV Oasis, which is an in-house power consumption of PV power system for offices and factories to use the generated power themselves, and is actively engaged in expanding the use of renewable energies. In addition, solar power panels have been installed on the rooftops of its Head Office & Hanshin Dream Factory and Central Dream Laboratory Building & Sales Head Office.

Nipron has introduced Nissan LEAF, an electric vehicle that does not emit CO<sub>2</sub>, as its company car as a part of its undertakings to tackle environmental issue described above. The Nissan LEAF introduced is provided at the Head Office & Hanshin Dream Factory and used by the employees to move between Nipron's business establishments and offer transportation to visiting guests. The car embodies Nipron's commitment to the reduction of CO<sub>2</sub> emission and noise, as well as the diffusion of electric vehicles. Nipron is determined to continue its undertakings to reduce environmental impacts proactively.

A wide range of power supply units is available. Call us to find out more.

<http://www.nipron.com>

# Nipron Sanda dream solar plant



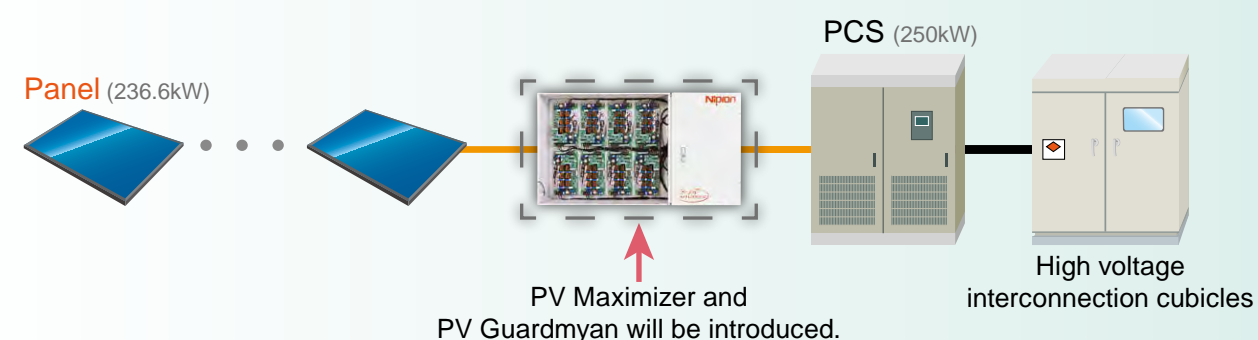
## Demonstration of repowering of solar power station

Nipron has acquired a solar power station that is in operation in Sanda City, Hyogo Prefecture. Recently, the secondary market of power stations has become active. Hence, Nipron Sanda Dream Power Station has introduced the PV Maximizer to perform a demonstration of repowering, a process to restore the original power generation capacity as it was put into operation or a level near it. The repowering result will be introduced in future issues of Nipron Wave and by other means. In addition, the PV Guardmyan will also be introduced at the site to perform a high-precision remote monitoring and diagnosis.



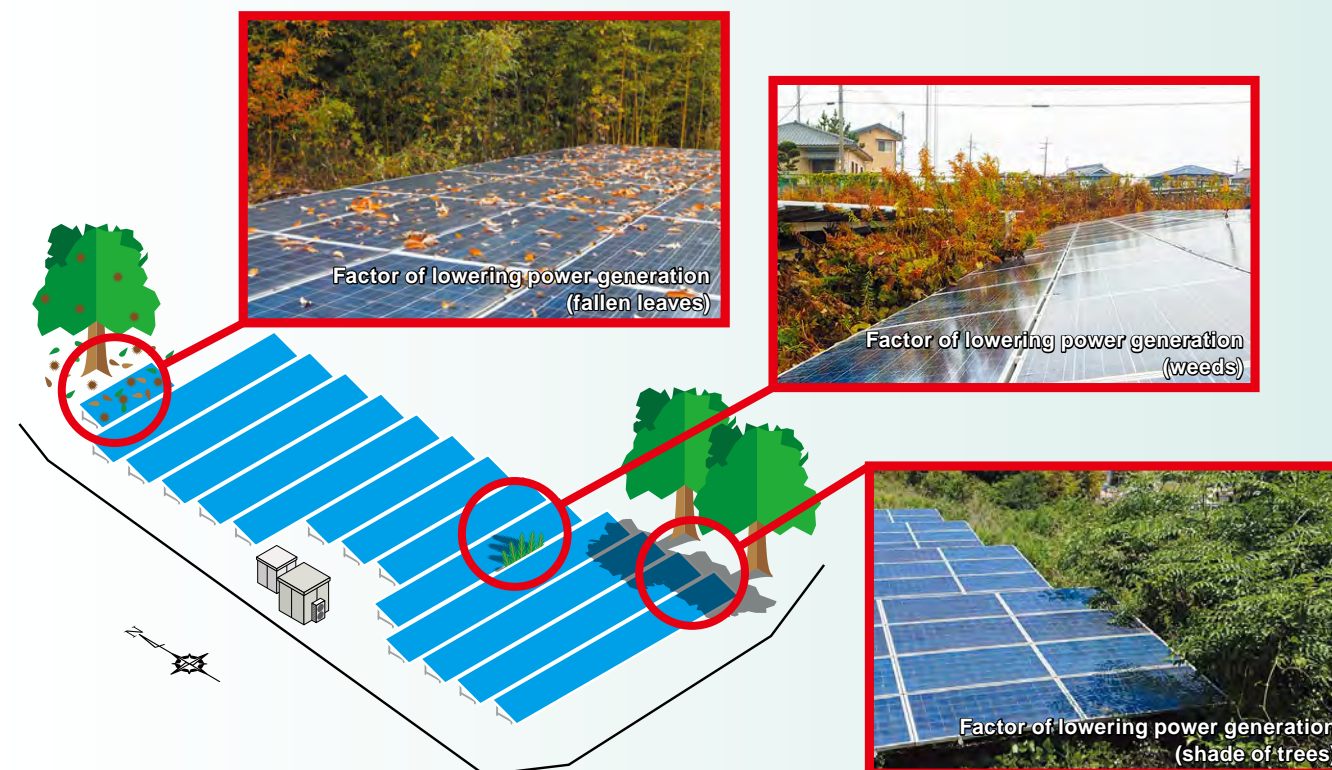
Nipron Sanda dream solar plant Area of land: 5,161m<sup>2</sup>

System configuration (Image) FIT price: 36 yen/kWh



## Factor of lowering power generation at Nipron Sanda dream solar plant

At present, the power generation is dropping due to panel deterioration, fallen leaves, weeds, and shadows at Nipron Sanda dream solar plant.



When you are having trouble with your power supply, look to Nipron.

<http://www.nipron.com>



# Good content needs a suitable “container.”

This year marks the “50th anniversary of our company’s founding” thanks to your support and patronage. We would like to extend our sincere gratitude to you all. We will make further efforts toward the 70th and 100th anniversary.

Fortunately, the ongoing recovery trend of Nipron’s order receipts and solid financial condition are highly evaluated by financial institutions, and therefore the risk of financial instability is considered small. What we need to do is to address the shortage of human resource (human capital) caused by an explosive boom of the GP business that is approaching.

Due to the lack of manpower amid favorable economic situation, super seller’s market continued over the past 3-5 years. This was good for new graduates but business enterprises were frustrated because they could not hire enough employees whom they wanted. However, the ongoing coronavirus recession is expected to lead to an extreme cutback in hiring. In particular, financial institutions, service, distribution, tourism and accommodation facility-related industries will feel slump over a long period of time. In the manufacturing industry, there may be a trend toward return to domestic production, encouraging students to pay attention to the manufacturing industry. Going forward, the job market is expected to shift to the buyer’s market, which is an opportunity for us.

During 5-6 years in the past after the Lehman Crisis, which was called “ice age” in job hunting, we continued to hire a large number of graduates. I think that the employees nurtured in those days have been the driving force behind our growth up until today. I am thinking of the same thing about the anticipated coronavirus recession, that is, hiring many students who have good elements (enthusiasm and positive way of thinking). For this purpose, we need to show off the attractiveness and capability of Nipron.

At the beginning of the second year of Reiwa, we selected one kanji (Chinese) character of the year – “container.” Now we need to carve out the future as a “container” to invite and nurture good human resources. That’s my long-cherished idea and will be embodied by the construction of “New Central Research Institute and New Head Office.” I see it as a matter of course that we should be prudent to carry out this big project amid concerns about the coronavirus recession. However, if by chance a suitable land for our purpose (near JR Amagasaki Station) is found, it is possible to secure the land first, and then start construction of buildings, on the assumption that sales will exceed 7 billion yen and operating income will be 700 million-1 billion yen higher.

In order to invite and accommodate human resources of high caliber (having competent abilities), we need a “container” (building with a good appearance) suitable for fully displaying their abilities. Citing a typical example, a store selling high-end brand products (e.g. Louis Vuitton) creates an atmosphere that attracts customers. Similarly, first-class hotels, restaurants, and luxurious Japanese restaurants also have a unique atmosphere that lights up its contents, or products, with a classy and stately appearance which evoke the image of the goodness. The same explanation is true of the above example. It is quite natural that a “container,” which is suitable for good contents (human capital, technologies, and products) that Nipron seeks, is required. The contents and the container are expected to produce a synergistic effect.

At our new Central Research Institute, which is currently being planned, we will not only conduct evolutionary development of the existing power supply business, but also take on research and development of the management style and how it should be in the new era jointly with research departments, which are engaged in the development of power electronics products and elemental technologies for the bright future. We are also considering working more professionally on the study of sales style and sales system, that is, digital sales. Furthermore, we would like to undertake pioneering research on productivity improvement that will lead to the workstyle reform more deeply than ever.



**Setsuo Sakai**  
**April 2020**