

* Gen-san who is lost

Nipron Wave

Vol.54 2019 Winter

Why was it possible to find
Gen-san who was lost in
the maze of a large-scale
solar panel installation?
See page 3 for the answer!

This is the highlight!

- 1 Special feature on GP power supply**
PV Maximizer is essential for realizing a decarbonized society.
- 2 Special feature on new product 100TBFS**
Step-up DC-DC converter which is optimum for AGV and makes it possible to reduce the cost of inverter and increase options for selecting the product.

The growing impact of ESG investment is accelerating the trend toward the emergence of a decarbonized society.

The mindset to approach environmental (E), social (S) and governance (G) issues that determines the corporate value.


While the ESG investment, which refers to the investment to corporates that put priorities in the aspects of environmental (E), social (S) and governance (G) issues, is spreading rapidly, corporates that uphold "energy transitions and decarbonization" have been found to be more valuable in the viewpoint of "environment" among the three. Amidst such a trend, the number of corporates that aim to enhance their social values by undertaking progressive actions to introduce renewable energies like photovoltaic power generation for in-house power consumption is increasing. Nipron proposes the step-up converter, PV Maximizer, and remote monitoring and diagnosis system, PV Guardmyan, specifically for such a purpose. In addition, Nipron's O&M service, in which these products are utilized in combination, makes it possible to maintain the facility reliably and make it fit for long-term operation. Nipron is committed to contributing to the realization of a sustainable society, which one of the priorities of Japanese government, through these products in addition to helping corporates to incorporate the use of renewable energy and decarbonization in their management strategy.

Three solutions to enhance the value



Maximization of electricity generated in solar power stations

** See pages 3-4 for more information.*



High-precision remote monitoring and diagnosis system

** See page 4 for more information.*

Perfect-full O&M

100% power sustained O&M service

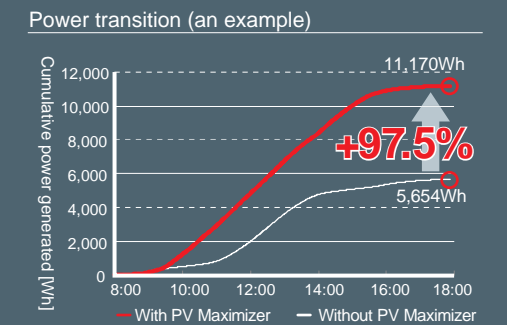
Materialize efficient power stations that are reliable and fit for long-term operation to accelerate the move to turn renewable energies into the major power source.

Contribute to the formation of a sustainable society

Examples of utilizing PV Maximizer

[1] Concentrated installation of panels

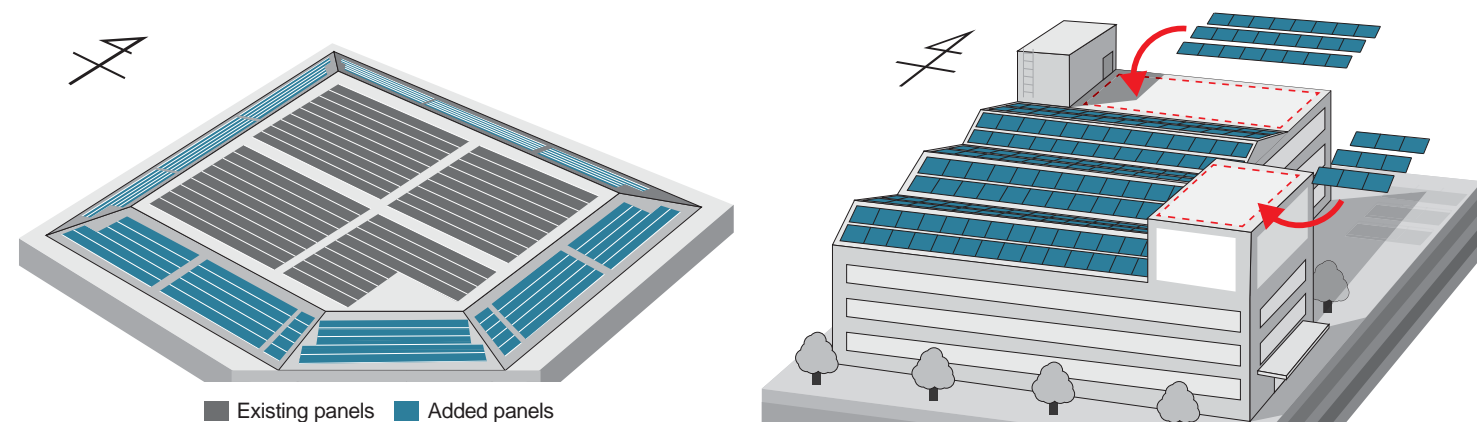
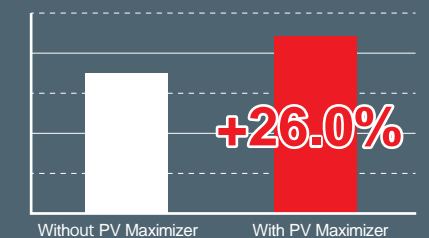
Concentrate panels by installing them with a shorter interval of arrays. This type of installation is enabled by the PV Maximizer (PVM), which increases the power generation even if shadows were cast on the arrays. By installing a larger number of panels than expected, the power generation per unit area can be increased.



[2] Utilize locations with unfavorable conditions and narrow spaces for power generation

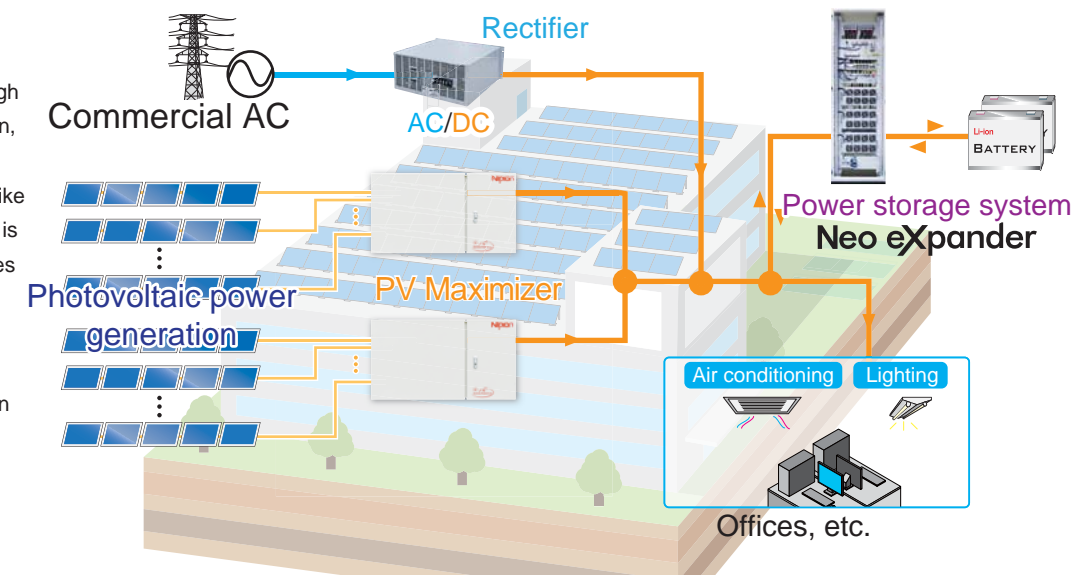
It is possible to install panels even in a location with poor conditions like a slope facing north. Depending on the condition, the number of panels may be increased of 150 to 200% from the conventional design, resulting in a significant increase in the power generation. Since installation becomes possible without worrying about the number of panels, direction or shades, the PV Maximizer demonstrates its effectiveness in installing the panels in areas like factory rooftops.

A comparison of power generated by panels facing north (an example)



In-house power consumption like ZEB/off-the-grid systems is also supported

The PV Maximizer converts the photovoltaic power generation with unstable voltage and output a stable high voltage power efficiently. For this reason, it exhibits an excellent chemistry with in-house power consumption systems like ZEB (Net Zero Energy Building), which is attracting attention from the perspectives of ESG and SDGs and the product has already been adopted in some installations. The PV Maximizer is also adopted in the DC-link priority control, in which photovoltaic power generation is consumed preferentially, used in large-scale data centers.



Vast solar power stations resembling an ocean: Real-time search for malfunctioning panels

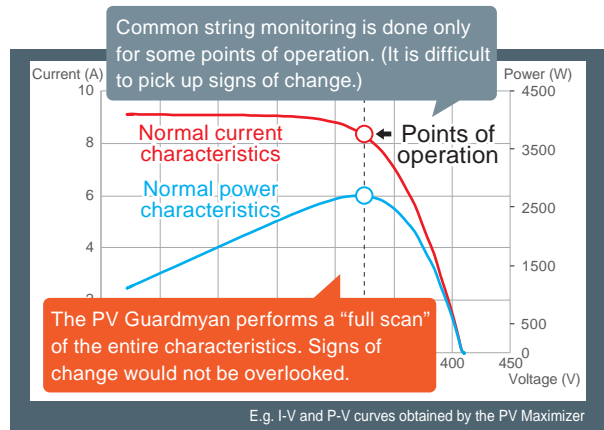
High-precision remote monitoring and diagnosis system, PV Guardmyan **PV Guardmyan**

The PV Guardmyan enables high-precision remote monitoring and diagnosis unlike no other system while keeping the cost in check. It is also possible to detect errors early and identify what type of error has occurred with the I-V curve diagnosis of each string.

- I High-precision (easy to identify)
- II Labor-saving, automatic (trouble-free)
- III Comes with the power recovery feature (reduces power generation loss)

	Common string monitoring	PV Maximizer and PV Guardmyan
Constant monitoring	Low sensitivity because of monitoring based only on the electric current, of which fluctuation is small.	High sensitivity because of monitoring based on the maximum output power, of which fluctuation is big.
I-V curve measurement	Measurement is done by an operator by bringing measuring instrument on-site.	Using the "full scan feature," an automatic measurement is performed for the entire system at an arbitrary time of the day (default setting: three times a day).
Recovery from errors	The power generation performance of the entire string could drop significantly due to a problem in some area.	The power generation performance of healthy section would be maintained by limiting the impact of a problem with the PV Maximizer effect.

An automatic measurement of I-V curve is done simultaneously for the entire system 365 days a year. Signs of change would not be overlooked.



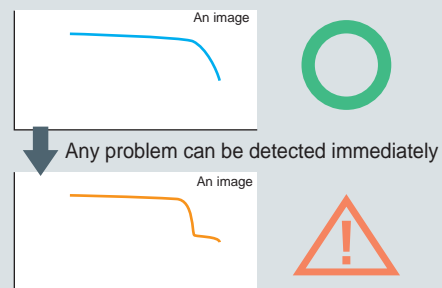
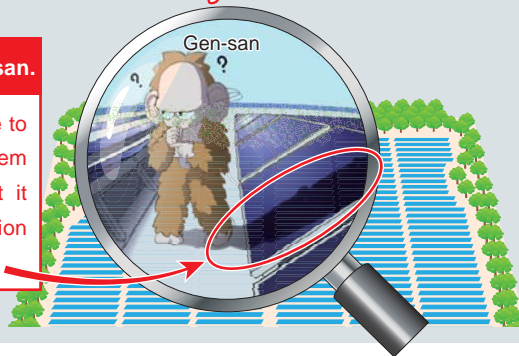
For example, there are illnesses and injuries that could only be found by performing an in-depth inspection, such as an X-ray scan. Similarly, there are many problems that could be found by performing an in-depth inspection with the I-V curve measurement for solar panels. As evidenced in the statement "it is desirable to perform the I-V curve measurement regularly as a part of the maintenance work (an excerpt from 11.3.4.3)" provided in the Guidelines of Photovoltaic Power Generation System Maintenance and Inspection (JM16Z001), the I-V curve measurement is very important in the maintenance of solar power stations.

Early detection by appropriate diagnosis is important!

Why was it possible to find Gen-san who strayed into the maze of a large-scale solar panel installation?

The answer is the "shadow" of Gen-san.

With the PV Guardmyan, it is possible to catch the shadow of Gen-san (a problem in the power generation) and report it automatically to help identify the location of the problematic string immediately.

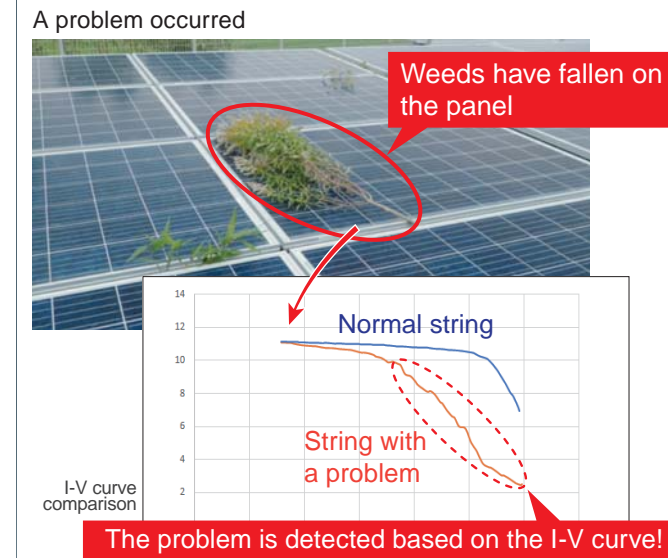


PV Guardmyan provides daily remote monitoring and diagnosis.

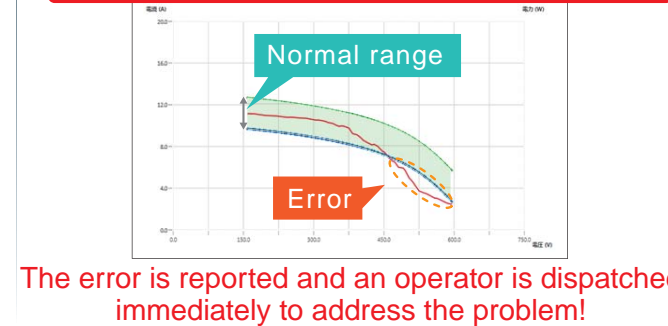
<http://www.nipron.com>

Examples of detecting problematic panels

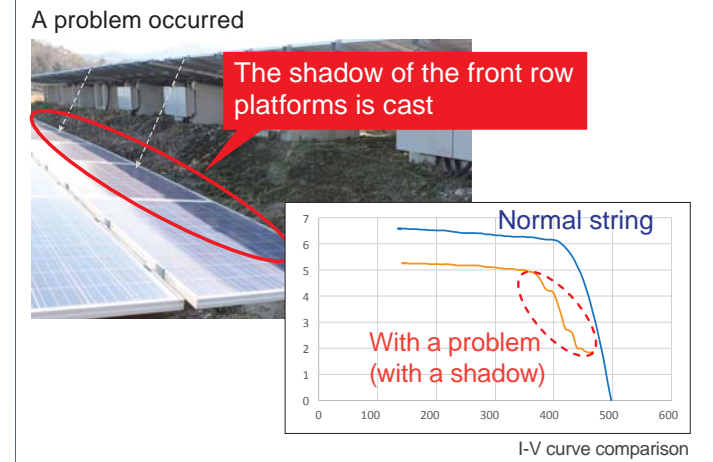
Case I Weeds on the panel



An error caught by the relative mask diagnosis

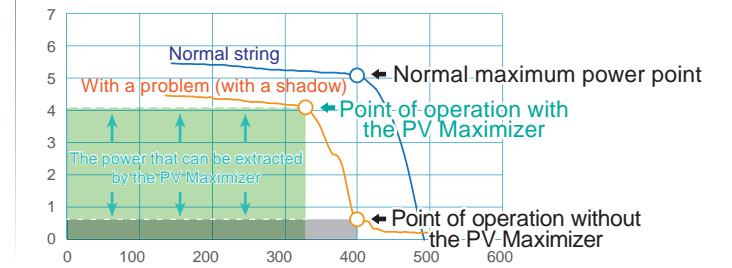


Case II The shadow of an array on the panel



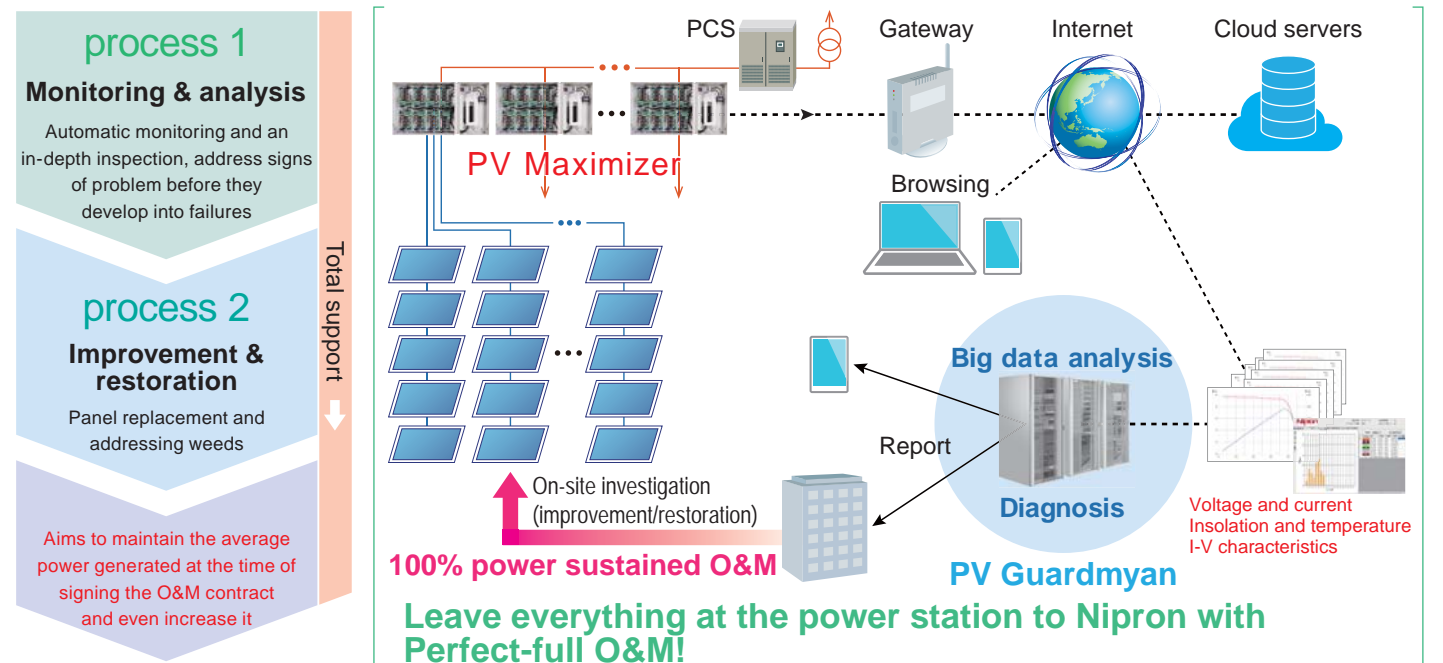
When there is a problem of shadow, with ordinary panels, the power generation would drop due to the voltage difference with other strings. If there was the PV Maximizer installed, the low voltage of affected string would be boosted to the level of other strings while maintaining the maximum power to cancel the voltage difference between strings and make it possible to extract the maximum power from panels available for power generation.

Improvement enabled by the PV Maximizer (concept)



"Perfect-full and 100% power sustained O&M"

With the "100% power sustained O&M," Nipron undertakes the monitoring, analysis, restoration from and addressing problems of power stations in a bulk package using PV Guardmyan to reduce the burden of the facility owner to the limit. It is a new O&M service provided by Nipron to maintain and even increase the average power generated at the time of contract utilizing the quick restoration from and addressing problems enabled by PV Guardmyan.



Nipron's O&M helps to maintain power generation at 100% while increasing the value of the power station.

<http://www.nipron.com>

Superior robustness to survive a severe and prolonged service

Optimum for deep learning and blockchain ... industrial PC power supply unit

Deep learning and blockchain change the history

Deep learning, one of the machine learning technique utilizing AI (artificial intelligence), and blockchain (distributed ledger), which is the core technology used for virtual currency, are attracting the attention of many. Deep learning is a machine learning technique used for computers to acquire rules and knowledge from a vast amount of diverse data, such as numbers, texts, images and audio. While it attains a significantly high accuracy compared to conventional methods, deep learning requires a massive amount of computation in the learning process. Blockchain refers to a technology to record and manage business data distributed on the net and make it difficult to tamper with the data by sharing it. There is a very big advantage in the security in this technology. Because all business data is published to prove the correctness of the data, a massive amount of computation is required for this purpose.

In the computation for deep learning and blockchain, the processing speed may be improved significantly by using GPUs compared to the use of CPU alone. On the other hand, the use of multiple GPUs on one computer increases the power consumption and the demanded capacity of power supply unit increases significantly. At the same time, because the computer keeps on running 24/7 and continues to process data, the power supply unit needs to be highly reliable and durable.



HPCSA-1500P-E2S

To be released this spring

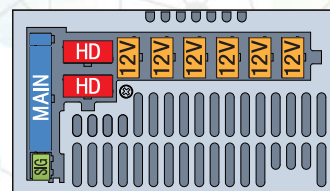
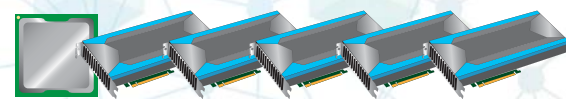
Large capacity ATX power supply with 1500W peak power and 94%typ max. efficiency

- Long-life design with the expected service life of 10 years or longer
- Reduced heat generation with the high efficiency design
- The use of through-hole plated double-sided circuit board
- Low noise design by adopting a temperature controlled variable-speed fan

I/O specifications

Input	85 to 264 VAC (Global input)										
Output voltage	MAIN/HD		12V						MAIN/HD		
	+3.3V	+5V	+12V1	+12V2	+12V3	+12V4	+12V5	+12V6	+12V7	-12V	+5VSB
Continuous maximum current / power	25A	25A	24A	24A	24A	24A	24A	24A	24A	1A	3A
	Total 207.5W		Total 1200W						15W		
Peak current / power (within 5 s)	30A	30A	32A	32A	32A	32A	32A	32A	32A	1.2A	4A
	Total 249W		Total 1500W						20W		
	Total 1500W										
Minimum current	0A	0A	0A	0A	0A	0A	0A	0A	0A	0A	0A
Size	150(W)×85(H)×200(D)										

6ch 12V power outputs for CPU/GPU supported



* Since the product is under development, the specifications may change without a notice.

A reliable, high-capacity power supply suitable for deep learning

<http://www.nipron.com>



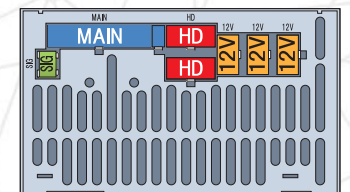
HPCSA-1000P-E2S

Large capacity ATX power supply with the peak power of 1000W

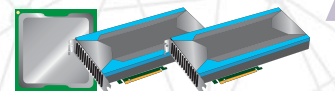
- High reliability design facilitating 24/7 nonstop operation at the rated power
- Reduced noise by the adoption of a temperature controlled variable-speed fan

I/O specifications

Input	85 to 264 VAC (Global input)							
Output voltage	MAIN/HD		12V			MAIN/HD		
	+3.3V	+5V	+12V1	+12V2	+12V3	+12V4	-12V	+5VSB
Continuous maximum current / power	25A	25A	18A	18A	18A	18A	0.4A	3A
	Total 207.5W		Total 792W			4.8W 15W		
Peak current / power (within 5 s)	30A	30A	25A	25A	25A	25A	0.6A	4A
	Total 249W		Total 1000W			7.2W 20W		
	Total 1000W							
Minimum current	0A	0A	0A	0A	0A	0A	0A	0A
Size	150(W)×85(H)×190(D)							



3ch 12V outputs for CPU/GPU supported



DC + AC hybrid input PSU Under development

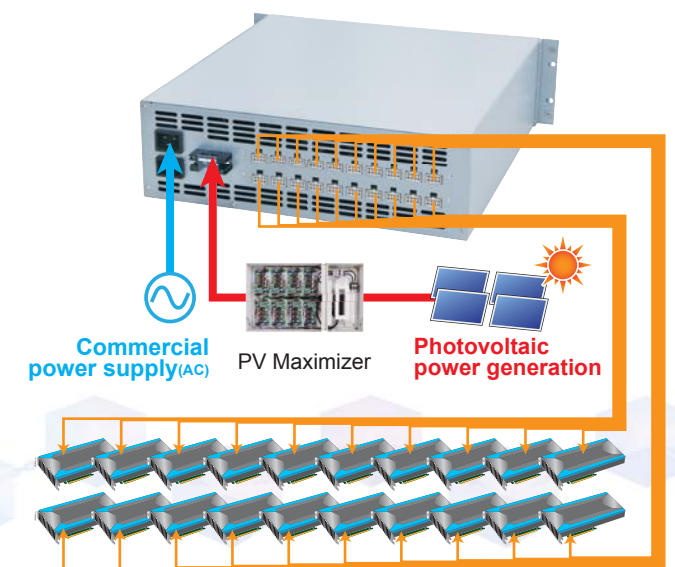
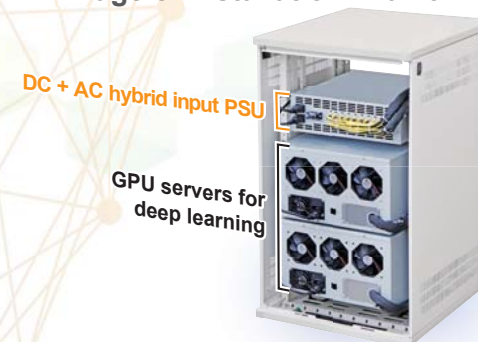
Large capacity 12V single output power supply unit for GPU allowing the input of solar power

- 19" rack mount 3U power supply unit
- Large capacity single output power supply unit with 20 12V connectors built-in
- With the DC input terminal provided, the solar energy may be utilized preferentially in the form of DC (realized by the combination with our PV Maximizer).

I/O specifications

Input	85 to 264 VAC (Global input) / 400 VDC	
Output voltage	+12V	
Continuous maximum power	2700W	
Peak power (within 5 s)	3000W	
Minimum current	0A	
Size	430(W)×132.4(H)3U×460(D)	

An image of installation in a 19" rack



20 12V connectors built-in

* Since the product is under development, the specifications may change without a notice.

DC power, obtained from sunlight, contributes to a highly efficient system.

<http://www.nipron.com>

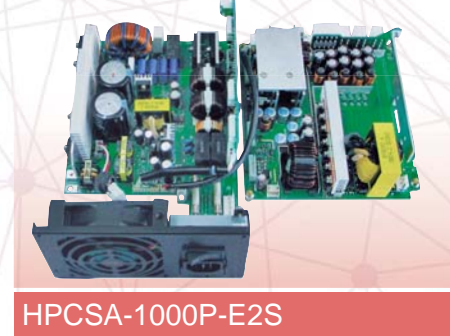
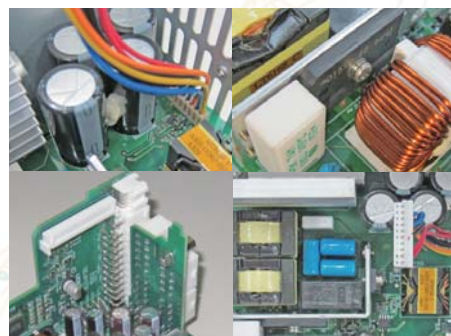
The quality and confidence available only with a “made in Japan” system

Nipron has been developing and producing power supply units in Japan ever since its foundation. Offering of high quality products is enabled by a streamlined manufacturing with the development and production departments arranged close by.



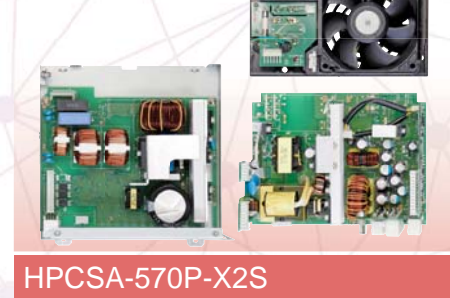
Particular layout design to realize high quality and high reliability

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.



HNSP9-520P series

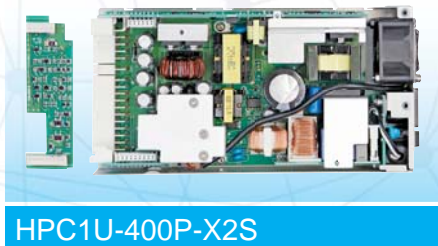
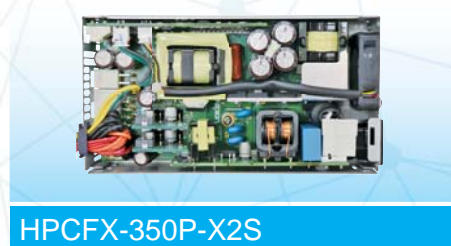
HPCSA-1000P-E2S



HPCSA-700P-E2S

ePCSA-650P-E2S

HPCSA-570P-X2S



HPCFX-350P-X2S

HPC1U-400P-X2S

mHPCSF-400P-X2S1

Production of AT power supply units that are hard to find


The mainstream of PC power supply unit has shifted to ATX and the demand for AT power supply units has dwindled, prompting many manufacturers to terminate the production of AT power supply units. Even so, the AT power supply units are still needed for industrial and maintenance applications. Nipron is still continuing its AT power supply unit production with a pledge for the long-term and stable supply.



Continuous **230W**
Peak **250W**

PCS-250-H11

High reliability PC power supply unit Lineup



NSP

Supporting the backup power for blackout
Large capacity ATX PSU

Output capacity
Continuous **822W** Peak **1000W**

Size (WxHxD) 150x85x190

HNSP4-1000P series




NSP

80 PLUS BRONZE acquired
Low standby power specification

Output capacity
Continuous **400W** Peak **520W**

Size (WxHxD) 150x86x140

HNSP9-520P series




NSP

Supporting the backup power for blackout
Large-capacity SFX form factor PSU for PCs

Output capacity
Continuous **310W** Peak **400W**

Size (WxHxD) 125x63.5x125

HPCSF-400P-X2B



NSP

Supporting the backup power for blackout
Flex ATX form factor PSU

Output capacity
Continuous **245W** Peak **346W**

Size (WxHxD) 81.5x41x150

HPCFX-350P-X2B




ATX

To be released this spring
High efficiency PSU with the max. efficiency of 94%typ
High-end ATX PSU allowing the peak power of 1500W

Output capacity
Continuous **1200W** Peak **1500W**

Size (WxHxD) 150x85x200

HPCSA-1500P-E2S




ATX

Highly reliable design enabling 24/7 nonstop operation
Reduced noise by the adoption of a temperature controlled variable-speed fan

Output capacity
Continuous **822W** Peak **1000W**

Size (WxHxD) 150x85x190

HPCSA-1000P-E2S



ATX

High efficiency PSU with the max. efficiency of 89%
Models supporting IoT are also available.

Output capacity
Continuous **600W** Peak **700W**

Size (WxHxD) 150x85x150

HPCSA-700P-E2S




ATX

Peak power of 650W
Large-capacity EPS12V PSU

Output capacity
Continuous **550W** Peak **650W**

Size (WxHxD) 150x86x180

ePCSA-650P-E2S




ATX

80 PLUS BRONZE acquired
ATX PSU with low standby power specification

Output capacity
Continuous **400W** Peak **570W**

Size (WxHxD) 150x86x140

HPCSA-570P-X2S




SFX

80 PLUS BRONZE acquired
Large capacity SFX PSU

Output capacity
Continuous **310W** Peak **400W**

Size (WxHxD) 125x63.5x125

HPCSF-400P-X2S1




1U ATX

80 PLUS BRONZE acquired
High efficiency 1U size ATX PSU

Output capacity
Continuous **305W** Peak **400W**

Size (WxHxD) 100x41x190

HPC1U-400P-X2S




1U Flex ATX

Flex ATX form factor
High efficiency miniature PSU for PCs

Output capacity
Continuous **245W** Peak **346W**

Size (WxHxD) 81.5x41x150

HPCFX-350P-X2S




Fan less NSP

Fanless & thin
Offers a backup power for blackout

Output capacity
Natural air cooling Forced air cooling
Continuous **170W 305W** Peak **400W**

Size (WxHxD) 106x37x225

HPCFL-400P-X2S



NSP

Medical standard approved IEC60601-1 Ed.3(MOOP)
PSU with a support for power failure backup

Output capacity
Continuous **822W** Peak **1000W**

Size (WxHxD) 150x85x190

mHNSP4-1000P series



SFX

Medical standard approved IEC60601-1 Ed.3.1(MOOP)
Large-capacity SFX form factor PSU for PCs

Output capacity
Continuous **310W** Peak **400W**

Size (WxHxD) 125x63.5x125

mHPCSF-400P-X2S1

Highly reliable design enabling 24/7 nonstop operation

<http://www.nipron.com>

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



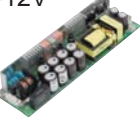

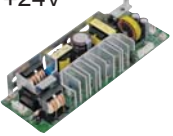
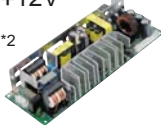




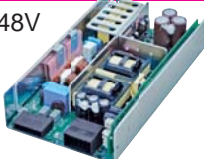
<http://www.nipron.com>



Nipron's single output power supplies capable of handling variety of conditions

PCB type AC-DC switching power supplies Lineup

Nipron's PCB type AC-DC switching power supplies OZ/OZP/UZP series are products with a reliability and functionality oriented design. Variety of products suitable of different applications are included in the lineup, including models with standby output and backup power for instantaneous power failures and blackouts.

OZ-015 +3.3V +5V +12V +15V +24V  Continuous 9.9 - 16.8W	OZ-030 +3.3V +5V +12V +15V +24V  Continuous 19.7 - 31.2W	OZ-060 +3.3V +5V +12V +15V +24V  Continuous 39.6 - 60W	OZP-120 +12V +12/15V ^{*1} +24V +30/36V ^{*1} +48V  Continuous 120 - 122.4W Peak 180 - 216W
OZP-170 +12/15V ^{*1} +24V  Continuous 168W Peak 270 - 300W	OZP-200 +3.3V +5V +12V +15V +24V +36V ^{*2} +48V  Continuous 132 - 201W Peak 198 - 403W	OZP-350 +12V +15V +24V +30V +36V +48V  Continuous 300 - 352.8W Peak 504 - 601W	UZP-120 +12V +24V  Continuous 100.8 - 120W Peak 200.4 - 201.6W
UZP-150 +12V +18V +24V +48V  Continuous 150 - 153.6W Peak 400.8 - 401.4W	UZP-220 +12V +18V +24V +48V  Continuous 180 - 223.2W Peak 400.8 - 401.4W	UZP-600 +24V +48V  Continuous 600W Peak 1200W	Features <ul style="list-style-type: none"> Conducted emission of even a single power supply unit clears VCCI Class B. The use of through-hole plated double-sided circuit board Long-life design with estimated life of 10 years or longer Low heat generation with the adoption of a high efficiency circuit

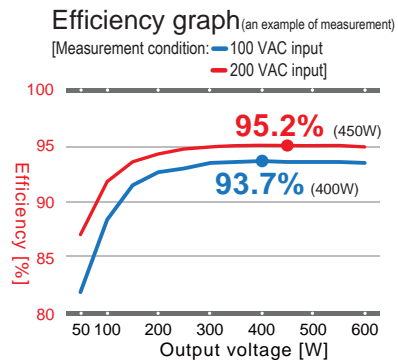
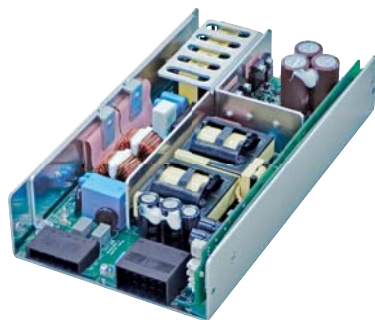
*1 Output select type *2 The 36V output may be used as a 30V power supply by adjusting the volume

Product close-up

Astonishing support of 1200W peak power with a fanless unit

UZP-600 series

(Natural air cooling) (Forced air cooling)
 Continuous: 600W / 801.1W
 Peak: 1200W
 Output voltage: 24V / 48V
 Max. efficiency: 95% (With 230 VAC)








- Features**
- With a +12V output (optional) linked with the remote ON/OFF for the fan
 - Improved reliability by reducing the risk of sucking in foreign matters with the fanless construction
 - Can address instantaneous power failures (by connecting a capacitor pack)
 - With a +12V standby power output linked with the AC input

The new UZP-600 is a fanless unit providing 600 W continuous/1200 W peak. <http://www.nipron.com>

Unit type AC-DC switching power supplies Lineup

The GPSA series products are unit type single output power supplies with the performance, features and reliability one level higher than those of common high-end PSUs. With flexible customization available, they satisfy various needs of customers.

GPSA-360 +12V +24V  Continuous 360W Peak (With 100 VAC) 480 - 499.2W Peak (With 200 VAC) 480 - 600W	GPSA-600 +12V +24V +36V +48V  Continuous 600W Peak (With 100 VAC) 960 - 1200W Peak (With 200 VAC) 1200 - 1400W	GPSA-1000 +24V +48V  Continuous 1008W ^{*1} Peak (With 115 VAC) ^{*2} 1320W Peak (With 240 VAC) 2016W	GPSA-1500 +24V +48V  Continuous 1512 - 1632W ^{*3} Peak (With 100 VAC) 1320W Peak (With 240 VAC) 2040 - 2112W	GPSA-5000 +48V +96V  Continuous 4800 - 4992W ^{*4} Peak 6000W ^{*4}
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*1 With 115 VAC input (907 W with 100 VAC input) *2 With 115 VAC input (1188 W with 100 VAC input) *3 With 200 VAC input (1056 W with 100 VAC input) *4 With 3P 180-240 VAC input

Product close-up

Large-capacity & high efficiency unit type AC-DC switching power supplies










GPSA-5000 series

Continuous: 4992W (96V type)
 Peak: 6000W
 Output voltage: 12V / 24V

Features

- High efficiency PSU with the max. efficiency of 93%typ
- Large power capacity supporting continuous power output of 4992 W and the peak power of 6000 W
- Further increase in the capacity with a parallel operation

Medical standard certified AC-DC switching power supplies Lineup

mUZP-120 +12V +24V  Continuous 100.5 - 120W Peak 200.4 - 201.6W IEC60601-1 Ed.3.1(MOOP)	mUZPT-120 +12V +15V +24V  Continuous 100.5 - 120W Peak 200.4 - 201.6W IEC60601-1 Ed.2 Ed.3.1(MOOP) Ed.3.1(MOPP)	mUZP-150 +12V +18V +24V +48V  Continuous 150 - 153.6W Peak 400.8 - 401.4W IEC60601-1 Ed.2 Ed.3.1(MOOP) Ed.3.1(MOPP)	mUZP-220 +12V +18V +24V +48V  Continuous 180 - 223.2W Peak 400.8 - 401.4W IEC60601-1 Ed.2 Ed.3(MOOP) Ed.3(MOPP)
mOZP-200 +3.3V +5V +12V +15V +24V +36V +48V  Continuous 132 - 201.6W Peak 198 - 403W IEC60601-1 Ed.3(MOOP)	mOZP-350 +12V +15V +24V +30V +36V +48V  Continuous 300 - 352.8W Peak 504 - 601W IEC60601-1 Ed.2 Ed.3.1(MOPP)	mGPSA-360 +12V +24V  Continuous 360W Peak 480 - 600W IEC60601-1 Ed.2 Ed.3(MOOP)	Protective measures <ul style="list-style-type: none"> 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

Product close-up

High efficiency PSU enabling miniaturization and cost reduction of appliances



mUZP-120 series

(Natural air cooling) (Forced air cooling)
 Continuous: 120W / 162W
 Peak: 201.6W
 Output voltage: 12V / 24V

Features

- Medical standard IEC60601-1 Ed.3.1 (MOOP) certified
- Conducted emission VCCI Class B cleared without the external noise filter
- Reduced heat generation with a high efficiency design

A wide range of medical products compliant with medical standards <http://www.nipron.com>

NEW Step-up DC-DC converter optimum for battery input like that of AGVs



Specifications

	Setting [1]	Setting [2]	Setting [3]
Input voltage	24 VDC	48 VDC	96 VDC
Input voltage range	19 - 37 VDC	37 - 74 VDC	74 - 128 VDC
Output voltage	284 VDC		
Output capacity (continuous)	1200 W	2500 W	4000 W
Output capacity (peak)	1500 W	4000 W	5000 W
Efficiency	90% typ	94.5% typ	97% typ

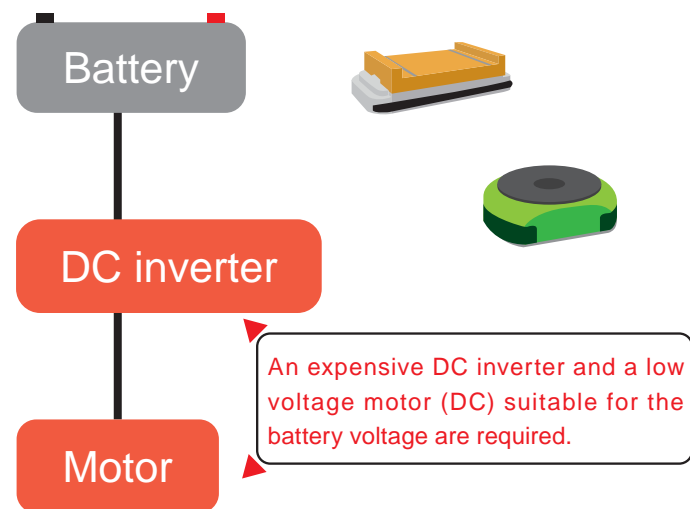
* Derating required (Contact us for further information.)

100TBFS-2500-280

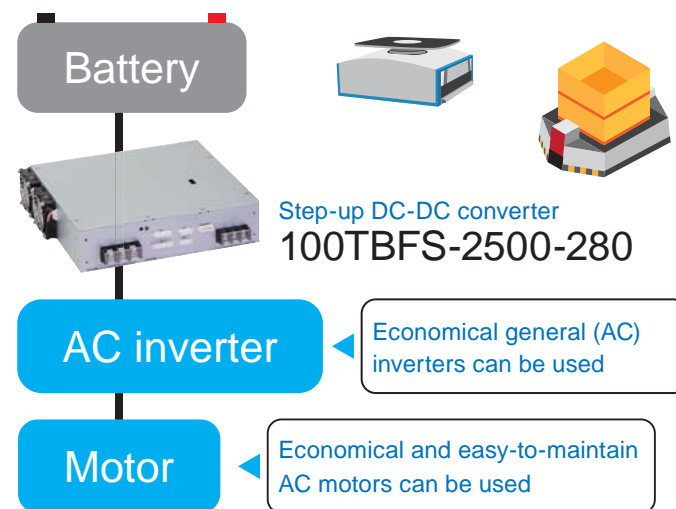
Cost reduction and increased options for the inverter

By applying the step-up DC-DC converter for automated guided vehicles (AGV) with the battery power source, it becomes possible to use general (AC) inverters, of which the cost is low and there are plenty of variations.

Using a DC inverter



Using an AC inverter with 100TBFS



**Cost increase ...
Less options ...**

**Cost reduction!
Increased options!**

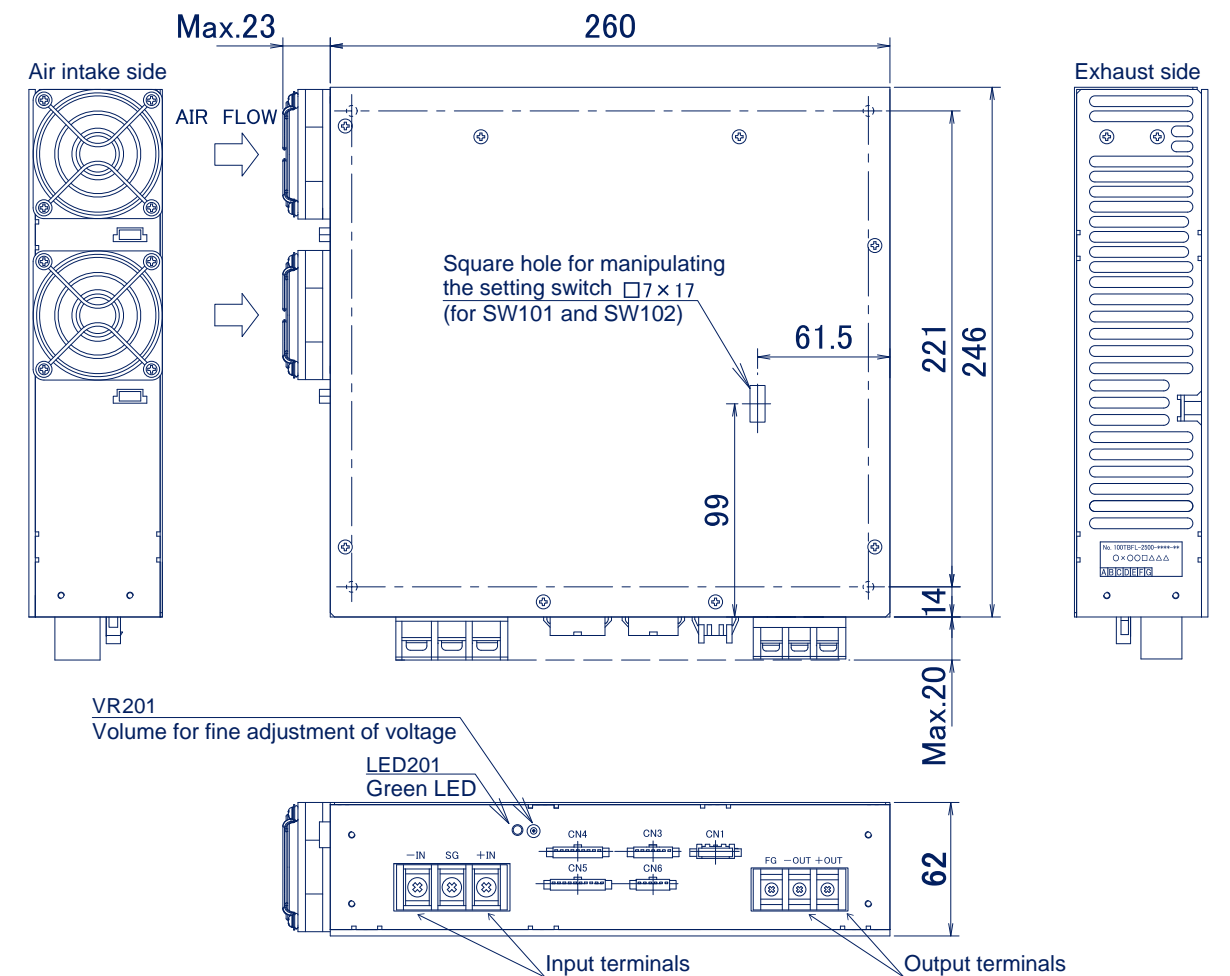
By the use of a step-up DC-DC converter, it is possible to reduce the cost from the system using a DC inverter and increase the option for selecting the product.

New 100TBFS models provide cost savings in the AGV market. <http://www.nipron.com>

Features

- ▶ **A wide range of input from 19 to 128 VDC supported** (input voltage range setting with a DIP switch)
- ▶ **Various protective features included**
 - Two-stage overcurrent protection
 - Input overvoltage protection
 - Output overvoltage protection
 - Low voltage protection
 - Overheating protection
- ▶ **Remote ON/OFF feature**
- ▶ **The capacity may be increased by the parallel connection**
- ▶ **Optimum for fuel cells**
- ▶ **Eliminates the use of electrolytic capacitors**
- ▶ **Approx. 15% smaller in volume and 20 to 50% increase in the output power in comparison with conventional models** (with the rated power input)
- ▶ **Energy saving design to reduce the power consumption**
 - 15W with no load (with 48 V input, remote ON)
 - 30mW remote OFF (with 48 V input)
 - The fan stops automatically with a small or no load to reduce the power consumption and extend the service life of the fan.

Outline drawing



Please consult Nipron for 2, 3 and 5 unit parallel connection models.

* Since it is a product under development, external appearance and specifications are subject to change.

Multifunctional step-up DC-DC converters — featuring compact design and high capacities

<http://www.nipron.com>

Invitation to exhibition



Nipron will participate in Embedded Systems Expo Osaka

Held inside **Japan IT Week Osaka**

Dates: January 23 (Wed)–25 (Fri) 2019
Venue: Hall 2, INTEX Osaka
Booth No: 9-9

3rd EMBEDDED SYSTEMS EXPO

For three days from 23rd to 25th of January, Nipron will participate in the 3rd Embedded Systems Expo Osaka to be held at INTEX Osaka for the first time. This exhibition attracts exhibitors of CPU/MCU, middle ware, board type computers and development tools.

At the Nipron booth, the high reliability and large-capacity ATX power supply unit HPCSA-1000P, enabling 24/7 continuous operation at the rated power and suitable for deep learning and blockchain, which are becoming hot these days, and the new ATX power supply unit HPCSA-1500P to be introduced this spring, with the maximum efficiency of 94%typ and supports output of large power — continuous power supply of 1200W and the peak power of 1500W, will be featured as the main products. In addition, actual product of IoT compatible ATX power supply unit HPCSA-700P (IoT compatible model) enabling various monitoring, including the life expectancy, output voltage/current and troubles, will be demonstrated. Also featured in the exhibition are the single output PSU UZP-600 series, supporting the continuous power of 600W and the astonishing peak power of 1200W with the fanless construction, and the large capacity 12V single output PSU "DC+AC hybrid power supply" for GPU which is under development, enables continuous power of 2700W and the peak power of 3000W and supports the input of solar power. Please do visit the Nipron booth if you plan to visit the exhibition.

NEW HPCSA-1500P NEW UZP-600



Nipron will participate in the 9th INT'L SMART GRID EXPO

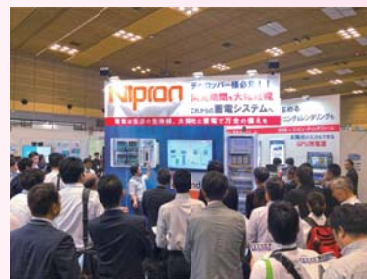
Held inside **World Smart Energy Week 2019**

Dates: February 27 (Wed)–March 1 (Fri) 2019
Venue: Tokyo Big Sight
Booth No: E32-20

9th INT'L SMART GRID EXPO

Nipron will participate in the 9th INT'L SMART GRID EXPO, which will be held from February 27 to March 1 at Tokyo Big Sight. It is an international exhibition and business opportunity, which attracts all products and technologies required to construct a smart grid.

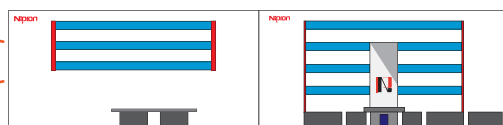
At the Nipron booth, the "Perfect-full and 100% power sustained O&M service," which is the first in Japan, will be introduced and the Neo eXpander, which is a charging/discharging rack for medium to large-scale power storage systems and may be applied for the storage of surplus power and disaster prevention, and the "solar power x GPU power supply unit," which enables the use of solar power for GPU servers in the form of DC will be exhibited. In addition, product presentations that have been accepted favorably in past exhibition will also be made. If you happen to visit the site, please do visit the Nipron booth.



Presentation (image)

A report on the Management Policy Presentation

Welcome



On the 8th of November 2018, guests were invited to an introduction of expanded Hanshin Dream Factory at the Nipron Head Office and then to the 15th Management Policy Presentation at Miyako Hotel New Archaic. Here we would like to express our heartfelt appreciation to the guests who spared their time to visit us.

Introduction of expanded Hanshin Dream Factory

An introduction party was held for the new building of Hanshin Dream Factory, which was completed in October 2018. To prepare for the introduction, the exhibition hall was expanded so that more products could be displayed. On the day of introduction, spaces for respective engineering departments were also provided to exhibit and demonstrate new products. Presentations that have been well received at different exhibitions were also made. Then, the main event of factory tour took place, including the new building which was just completed. We think the visitors were satisfied with the event, which provided an opportunity to see the workshop producing Nipron's quality products.



Introduction corners of different departments



A scene from the factory tour using the new building

The 15th Management Policy Presentation

In the Management Policy Presentation, Mr. Sakai, Representative Director & President addressed the group after an energetic Japanese drum performance by Wadaiko Matsumura-Gumi. Then, the policies for future Nipron activities were presented by the heads of departments. At the thanks party for The Order of the Rising Sun, Silver Rays Award held after the policy presentation, President Sakai thanked everybody for the support provided to Nipron in the past leading to the award received last spring. During the fellowship banquet held at the same time, we felt that a stronger tie was built with every participant. We ask for continued support for Nipron in the future.



A scene from the Management Policy Presentation



A scene from the thanks party for The Order of the Rising Sun, Silver Rays Award

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

<http://www.nipron.com>

Voices of customers using the PV Maximizer



Interview

200% super overloading achieved by combining the PV Maximizer and the Green Best Mix power supply



Yamakoh Co., Ltd. manufactures custom-made PLADAN cases and other products by processing and manufacturing PLADAN (Corrugated plastic packaging) at their factories in accordance with the application and operation of the customer. Their original products, which are light in weight, sturdy and durable, enhance the working efficiency, reduce the transport cost and losses due to breakage, and help reduce the time it takes to construct and demolish event sites. They have successfully produced more than 30,000 products, which have been utilized in a wide variety of fields regardless of industry or type of operation.

Mr. Yoshihiro Yamazaki,
Representative, Yamakoh Co., Ltd.

[1] Backgrounds of introduction

Would you tell us what prompted you to start the photovoltaic power generation?

We started it because we could contribute to the society by reducing CO2 while maintaining the operation as a business.

What initiated the encounter with Nipron?

As we were considering an expansion of solar power panels in association with a plan to build a new factory, we could not find a company who could materialize the system we were considering. Even though we contacted more than ten companies, who we thought had the technology to build it, our proposal was turned down because of the lack of experience. We had a chance to consult Nipron at the Kansai Smart Grid EXPO on the current situation and issues to be solved and Nipron was quick to respond to us by sending a team of engineer and sales person to us. We were able to decide on the outline and policy for the system to be introduced thanks to this move of Nipron.

What was the first impression of PV Maximizer?

It is not a simple addition but a product that enables proposals not available from others. In particular, the capability to expand the facility without the restriction of overloading capacity caught our attention.



PV Maximizer

Tell us why you chose PV Maximizer.

Because the proposal for expansion, including the PV Maximizer, satisfied our demands. By expanding the system above the overloading limit of our PCS, which did not have the automatic reset feature, we were able to utilize the rooftop of new factory building effectively. Conventionally, there had been no choice but to add panels while maintaining the FIT price for the existing facility as a new expansion was not possible due to the power generation limit for the area had been exceeded. Even upon completion of the expansion, we were able to introduce a unique system with a potential for a significant overloading of panels without putting an excessive stress on the old PCS.

Tell us about the anxiety and concerns you had before the introduction of PV Maximizer.

Because Nipron was not the company who installed the original system, we were a bit worried about their service. In addition, since they are a power supply unit manufacturer, their history in the PV industry was short and we had a little doubt about their knowledge.

[2] Effects of the introduction

Were you relieved of those anxieties and concerns after the introduction?

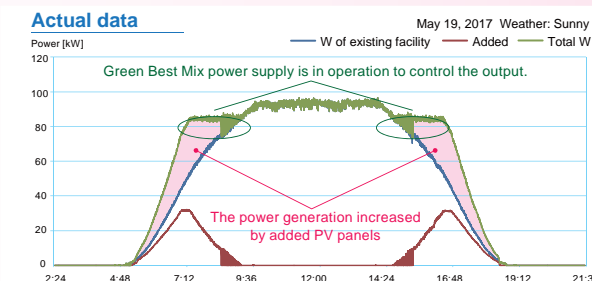
By having a thorough discussion between the solar power panel installer designated by us and Nipron on the product outline to actual installation work, the installation was performed without a mismatch. Also, a technical discussion with the supplier of existing PCS helped resolve anxieties regarding the technical aspects.



A power station at Yamakoh Co., Ltd.

Were the power generation amount and profit after the introduction as expected?

There has been an increase in the revenue of sale of electricity power comparable to the expansion and the power generation amount has been as expected.



[3] For the future

Do you have any idea about the power station operation after the completion of the FIT electricity sales?

We are thinking about diverting the power for in-house power consumption. Because additional introduction of rechargeable battery would make it possible to address blackouts in addition to the in-house power consumption, we are considering our options.

What do you expect from Nipron in the future?

One of the strengths of Nipron is their capability to perform the charging/discharging control. Under the current situation where in-house power consumption is progressing, we wish Nipron could come up with epoch-making proposals utilizing rechargeable batteries. Proposals combining PC power supply unit, which is their core business, and the solar power would also be appreciated.

The PV Maximizer has been adopted by many of our customers.

<http://www.nipron.com>

**The Nipron Story,
by Our President**

Bone

New Year' s Day 2019
Happy New Year!

Last year was a very good one marked by many auspicious occasions. In spring, I was awarded the Order of the Rising Sun, Silver Rays. In June, the release of our financial performance revealed that we had achieved 6.1 billion yen in sales for the first time in Nipron' s history. In autumn, we constructed a new building for our head office and the factory.

I would like to express my sincere gratitude to everyone for joining in the celebration of our plant opening ceremony, the 15th Management Policy Presentation, and the party to commemorate the awarding of my Order. As well, we very much appreciated the congratulatory comments of many attendees regarding the content of our exhibition and our displays. I think our get-together meeting was also a very productive one.

In May of this year, we will enter a new era that has been granted a new name. Japan' s next emperor will be crowned and a year of festivities will begin. Building on the momentum of the arrival of the Year of the Boar, we have adopted the slogan "only go forward," and thus we will work hard to meet the objective of our 38th fiscal period, which is to achieve 7 billion yen in sales.

For Nipron, we are witnessing dramatic changes accompanying technological innovations associated with the arrival of electric vehicles, artificial intelligence, and the Internet of Things; adopting a business posture that hesitates to engage with these changes presents the risk of missing major opportunities, which includes the risk of being left behind by the revolution arising at this historical turning point. At this moment I believe we are close to seeing the fruit of the Green Power Revolution, which Nipron is currently advocating, as we near an era of greater opportunity. Instead of going on the defensive, I want us to work without forgetting to be both aggressive and reliable, in other words, "defending while attacking."

As a leader who has adopted a spirit of always being "on the battlefield" with armor and helmet always at the ready, we must resolve to overcome all difficulties we face by adapting to every situation as it arises.

This single Chinese character chosen to represent this year is hone, or "Bone." In this spirit, we would like to develop a backbone for the mind, to represent a way of life as well as a framework for our company as a more robust organization. We are promoting a policy of developing human resources with backbone while also seeking personnel from outside the company.

As a policy for the coming year, we will promote full-scale strengthening of our "navy sales system" by aiming to fully extend it to all three branches of the military sales system encompassing the army, navy, and air force in order to develop an even stronger sales system.

Furthermore, we intend to promote value creation by strengthening Nipron in every way.

I thank you again and look forward to a successful year ahead.



A scene from the Management Policy Presentation



A scene from the thanks party for The Order of the Rising Sun, Silver Rays Award

Setsuo Sakai
January 2019

 **Nipron Co., Ltd.** <http://www.nipron.com>

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