NIPRON
GAZE into the future

Nipron Wave
Vol.60

Thank you to health care workers at the front line.

This is the highlight

1. **Special issue of medical standard power supply**
   Introduction of extensive lineup of medical power supplies.
2. **Non-grid connected type, in-house consumption of power stored in battery, “PV Oasis”**
   Introduction of various solutions of PV Oasis such as no RPR, no discussion on the grid connection, BCP, enhanced resilience and off-grid.

Front cover illustration by Terumitsu Miyamoto

Medical Standard, IEC60601-1, Approved AC-DC Power Supplies

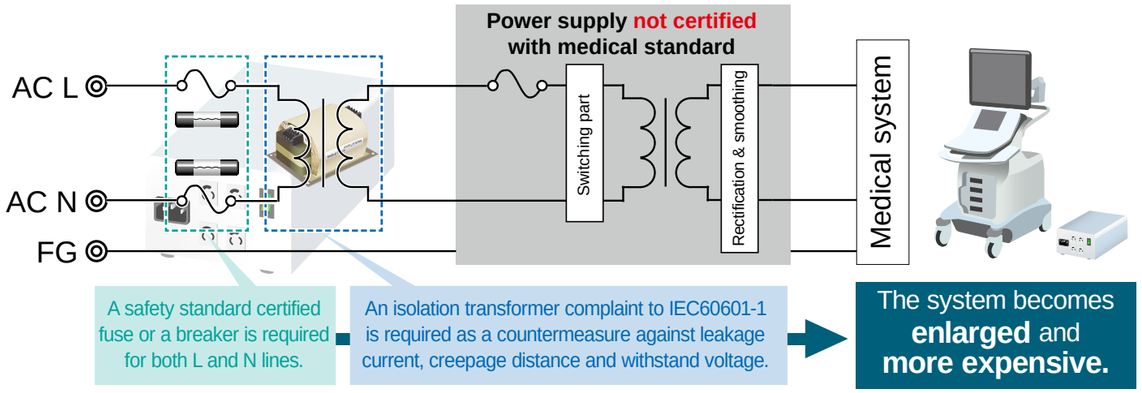
About medical standards

In the medical sector, electrical devices are required to conform to each country's medical standards in accordance with safety standard [IEC60601-1], the technical standard for medical electrical equipment published by the International Electrotechnical Commission (IEC). Because of the emphasis on safety, the required specifications are quite strict in comparison with [IEC62368-1], the standard for safety of information processing equipment.

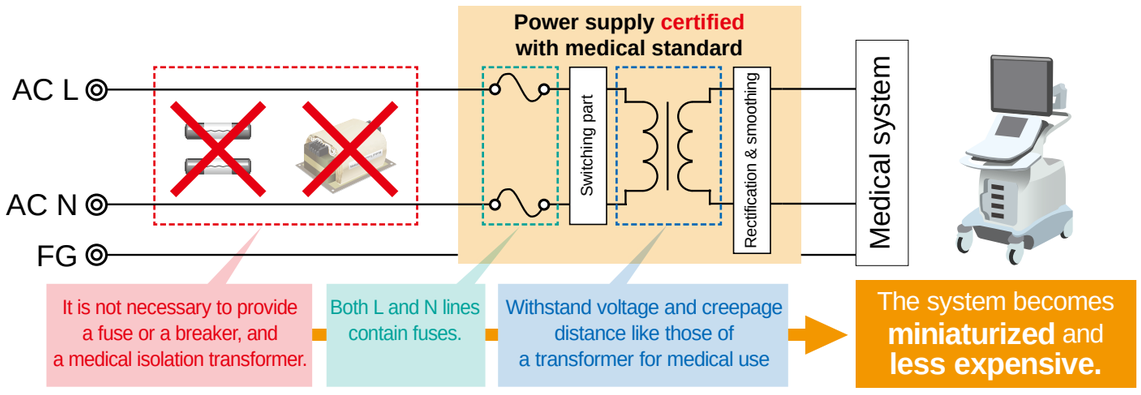
Benefits of using certified power supplies in medical equipment

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 is **not certified** with medical standard.



In the case that a power supply is **certified** with medical standard.



List of Medical Standard Approved Power Supplies

Single output power supply lineup

Name of series	IEC60601-1 Ed.2	IEC60601-1 Ed.3.1		Backup	Output voltage (single output)	Continuous output	Peak output
		2MOPP	2MOOP				
mUZP-120 series	–	–	○	–	12, 24V	100.8-120W	200.4-201.6W
mUZPT-120 series	○	○	○	–	12, 15, 24V	100.5-120W	200.4-201.6W
mUZP-150 series	○	○	○	–	12, 18, 24, 48V	150-153.6W	400.8-401.4W
mUZP-220 series	○	○	○	○	12, 18, 24, 48V	180-220.8W	400.8-403.2W
mOZP-200 series	–	–	△ (Ed.3)	–	3.3, 5, 12, 15, 24, 36*, 48V	132-201.6W	198-403.2W
mOZP-350 series	○	○	–	○	12, 15, 24, 30, 36, 48V	300-352.8W	504-601W
mGPSA-360 series	○	–	△ (Ed.3)	○	12, 24V	360W	480-600W

*36V output model is available as 30V output power supply by adjusting volume.

PC power supply unit lineup

Name of series	IEC60601-1 Ed.2	IEC60601-1 Ed.3.1		Backup	Continuous output	Peak output	Shape
		2MOPP	2MOOP				
mHNSP4-1000P series	–	–	△ (Ed.3)	○	822W	1000W	ATX
mNSP3-450P series	○	△ (Ed.3)	–	○	300W	450W	ATX
mPCSA-500P-X2S	○	△ (Ed.3)	–	–	300W	500W	ATX
mHPCSF-400P-X2S1	–	–	○	–	310W	400W	SFX

Protective measures

- MOOP Means of Operator Protection ⇒ Protective measures to reduce the risk of electric shock to people other than the patient
- MOPP Means of Patient Protection ⇒ Protective measures to reduce the risk of electric shock to the patient
- There are two categories in the means of protection, "1" and "2", based on the insulation class,
  - 1MOOP/1MOPP ⇒ Basic Insulation
  - 2MOOP/2MOPP ⇒ Reinforced Insulation

Leakage current (an example of actual measurement at rated load)

Name of series	110 VAC input	264 VAC input
mUZP-120 series	0.06mA typ	0.15mA typ
mUZPT-120 series	0.06mA typ	0.14mA typ
mUZP-150 series	0.06mA typ	0.15mA typ
mUZP-220 series	0.06mA typ	0.15mA typ
mOZP-200 series	0.05mA typ	0.11mA typ
mOZP-350 series	0.06mA typ	0.11mA typ
mGPSA-360 series	0.09mA typ (at 100VAC)	0.19mA typ (at 240VAC)
mHNSP4-1000P series	0.13mA typ	0.31mA typ
mNSP3-450P series	0.09mA typ	0.22mA typ
mPCSA-500P-X2S	0.09mA typ	0.23mA typ
mHPCSF-400P-X2S1	0.09mA typ	0.23mA typ

Medical Standard Approved Single Output Power Supplies

Thin, ultra-high efficiency
PCB type single output power supply

mUZP-120

IEC60601-1 Ed.3.1 approved

•Input-output: 2MOOP •Input-FG: 1MOOP

Continuous: **100.8W-120W**
Peak: **200.4-201.6W**
Output voltage: **12/24V**
Size: **62×27×155**
(W×H×D)

High efficiency 94% typ

Max. efficiency of 94% typ is achieved with rated output. Its high efficiency resulting in low heat generation enables miniaturization and built-in devices.

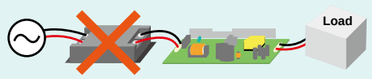
Ultra thin with 27mm height

Height from the bottom of PCB is 24mm

The power supply 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.

Reduction of noise filters becomes possible!



Ultra-high efficiency
PCB type single output power supply

mUZPT-120

IEC60601-1 Ed.2, Ed.3.1 approved

•Input-output: 2MOOP, 2MOPP •Input-FG: 1MOOP, 1MOPP

Continuous: **100.5-120W**
Peak: **200.4-201.6W**
Output voltage: **12/15/24V**
Size: **62×38×155**
(W×H×D)

High efficiency 94% typ

Max. efficiency of 94% typ is achieved with rated output. Its high efficiency resulting in low heat generation enables miniaturization and built-in devices.

The power supply 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.

Reduction of noise filters becomes possible!

Low voltage models in the lineup
PCB type single output power supply

mOZP-200

IEC60601-1 Ed.3 approved

•Input-output: 2MOOP •Input-FG: 1MOOP

Continuous: **132-201.6W**
Peak: **198-403.2W**
Output voltage: **3.3/5/12/15/24/36/48V**
Size: **73×41×222**
(W×H×D)

The power supply 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.

Backup for instantaneous power failure

Capacitor pack which allows for backup for instantaneous power failure

	Output capacity / Reference discharge time
BS13A-EC400/422F	180W / Approximately 1 s

Standby output

Standby output board (attached to the radiating fin)

	Output voltage / Output capacity
PS-10WP-5VSB	5 V / 7.5 A / Peak 10 W

Ultra-high efficiency
PCB type single output power supply

mOZP-350

IEC60601-1 Ed.2, Ed.3.1 approved

•Input-output: 2MOPP •Input-FG: 1MOPP

Continuous: **300-352.8W**
Peak: **504-601W**
Output voltage: **12/15/24/30/36/48V**
Size: **95×47×222**
(W×H×D)

High efficiency 95% typ

Max. efficiency of 95% typ is achieved with rated output. Its high efficiency resulting in low heat generation enables miniaturization and built-in devices.

The power supply 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.

Backup for instantaneous power failure

Capacitor pack which allows for backup for instantaneous power failure

	Output capacity / Reference discharge time
BS13A-EC400/422F	180W / Approximately 1 s

Economy type
PCB type single output power supply

mUZP-150

IEC60601-1 Ed.2, Ed.3.1 approved

•Input-output: 2MOOP, 2MOPP •Input-FG: 1MOOP, 1MOPP

Continuous: **150-153.6W**
Peak: **400.8W-403.2W**
Output voltage: **12/18/24/48V**
Size: **75×35×160**
(W×H×D)

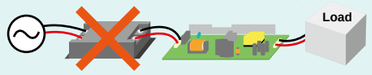
High peak power

Supports peak output of max. 2.6 times larger than the rated output. Ideal for equipment requiring high starting current such as motors.

The power supply 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.

Reduction of noise filters becomes possible!



Low standby power

Standby power at remote OFF is reduced to 0.03W at 100 VAC.

■Please contact us about other products for countermeasure against instantaneous power failure.

Ultra-high efficiency
PCB type single output power supply

mUZP-220

IEC60601-1 Ed.2, Ed.3.1 approved

•Input-output: 2MOOP, 2MOPP •Input-FG: 1MOOP, 1MOPP

Continuous: **180-220.8W**
Peak: **400.8-401.4W**
Output voltage: **12/18/24/48V**
Size: **75×36×160**
(W×H×D)

High efficiency 94% typ

Max. efficiency of 94% typ is achieved with rated output. Its high efficiency resulting in low heat generation enables miniaturization and built-in devices.

The power supply 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.

Backup for instantaneous power failure

Capacitor pack which allows for backup for instantaneous power failure

	Output capacity / Reference discharge time
BS13A-EC400/422F	180W / Approximately 1 s

■Please contact us about other products for countermeasure against instantaneous power failure.

Backup available optionally
Enclosed power supply

mGPSA-360

IEC60601-1 Ed.2, Ed.3 approved

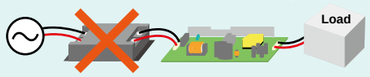
•Input-output: 2MOOP •Input-FG: 1MOOP

Continuous: **360W**
Peak: **480-600W**
Output voltage: **12/24V**
Size: **41×128×230**
(W×H×D)

The power supply 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.

Reduction of noise filters becomes possible!



Backup available optionally

Battery package

	Output capacity / Reference discharge time
BS14A-H24/2.5L	100W / Approximately 18 min

NEW

Medical standard compliant products

GP1U-1000

Continuous: **1008W** Peak: **1440W**
Output voltage: **24/48V**
Size: **127×40.5×254**
(W×H×D)

- IEC60601-1 Ed.3.1 (2MOPP) compliant
- 100% output (1008W) possible at 90 VAC
- Achieved long life with 1U size
- The power supply alone clears VCCI classB

UZP-600

Continuous: **600W** Peak: **1200W**
Output voltage: **24/48V**
Size: **127×44×228.6**
(W×H×D)

- Achieved high efficiency 95% typ
- IEC60601-1 Ed.3.1 (2MOPP) compliant
- 100% output (600W) possible at 90 VAC
- The power supply alone clears VCCI classB

Please contact us regarding the medical standards of these models.

mUZP series achieved high reliability and high efficiency. http://www.nipron.com

Supporting wide range of load capacity http://www.nipron.com

Medical Standard Approved Nonstop Power Supplies

Nonstop power supply with large-capacity backup — mHNSP4-1000P

IEC60601-1 Ed.3 approved

•Input-output: 2MOOP •Input-FG: 1MOOP

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

Size: **150×85×190** (W×H×D)

Output voltage	+3.3V	+5V	+12V1	+12V2	+12V3	+12V4	-12V	+5VSB
Maximum current/ Maximum power (continuous)	25A	25A	18A	18A	18A	18A	1.2A	3A
	Total 207.5W		Total 792W				14.4W	15W
	Total 822W							
Peak current/ Peak power (within 5 s)	30A	30A	25A	25A	25A	25A	1.2A	4A
	Total 249W		Total 1000W				14.4W	20W
	Total 1000W							
Minimum current	0A	0A	0A	0A	0A	0A	0A	0A

Main 24pin ×1 · Main 20pin ×1 · 12V 4pin ×3 · 12V 8pin ×6 · PCI-E 6pin ×3

PCI-E 6+2pin ×2 · HDD ×10 · S-ATA ×14 · FDD ×2

* Maximum number of respective connectors. For details, please check them on HP, with product catalogues, etc.

CCC approved Nonstop power supply — mNSP3-450P

IEC60601-1 Ed.2, Ed.3 approved

•Input-output: 2MOPP •Input-FG: 1MOPP

Continuous: **300W** Peak: **450W**

Size: **150×86×140** (W×H×D)

Output voltage	+3.3V	+5V	+12V	-12V	+5VSB
Maximum current/ Maximum power (continuous)	20A	22A	22A	0.5A	2.0A
	Total 160W				
	Total 285W				
	Total 301W				
Peak current/ Peak power (within 5 s)	30A	33A	30A	0.5A	2.5A
	Total 200W				
	Total 432W				
	Total 450.5W				
Minimum current	0A	0A	0A	0A	0A

Main 24pin ×1 · Main 20pin ×1 · 12V 4pin ×1 · 12V 8pin ×2 · PCI-E 6pin ×1

HDD ×5 · S-ATA ×7 · FDD ×1

* Maximum number of respective connectors. For details, please check them on HP, with product catalogues, etc.

What is Nonstop power supply?

Nonstop PSU enables a secure backup system even with a blackout.

Nonstop power supply is our specific technology

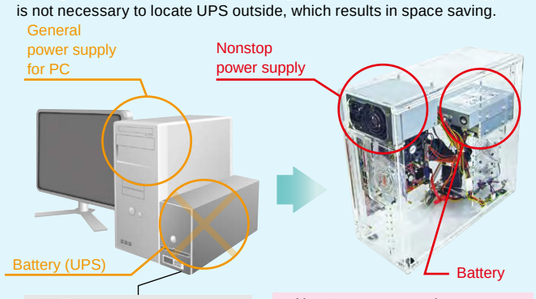
It has a built-in blackout backup circuit which is Nipron original. If it is connected with a battery package, it is possible to supply stable power without bringing about any abnormality or change in output even when such input failure as blackout, instantaneous power failure or voltage drop occurs.

Nonstop power supply is power feeding with NO instantaneous interruption.

Nonstop power supply does not require time for switching to battery operation at the time of blackout and enables automatic shift by comparison of voltage level of each inverter at the AC side, at the battery side and thus achieves highly reliable power feeding with NO instantaneous interruption.

Nonstop PSU is space saving

Since it is possible for Nonstop power supply to have a built-in battery package for backup in PC (in a housing) (5-inch bay or 3.5-inch bay), it is not necessary to locate UPS outside, which results in space saving.



■UPS
Outside space for installation is required.

■Nonstop power supply
Since it can be built in to a PC, space can be saved.

Medical Nonstop PSU that does not stop even in a blackout *http://www.nipron.com*

Medical Standard Approved PC Power Supply

Medical model from the best-selling ATX power supply — mPCSA-500P-X2S

IEC60601-1 Ed.2, Ed.3 approved

•Input-output: 2MOPP •Input-FG: 1MOPP

Continuous: **300W** Peak: **500W**

Size: **150×86×140** (W×H×D)

Output voltage	+3.3V	+5V	+12V	-12V	+5VSB
Maximum current/ Maximum power (continuous)	20A	22A	22A	0.5A	2A
	Total 160W				
	Total 285W				
	Total 301W				
Peak current/ Peak power (within 5 s)	30A	33A	30A	0.5A	2.5A
	Total 200W				
	Total 482W				
	Total 500.5W				
Minimum current	0A	0A	0A	0A	0A

Main 24pin ×1 · Main 20pin ×1 · 12V 4pin ×1 · 12V 8pin ×2 · PCI-E 6pin ×1

HDD ×5 · S-ATA ×7 · FDD ×1

* Maximum number of respective connectors. For details, please check them on HP, with product catalogues, etc.

Highly reliable SFX power supply — mHPCSF-400P-X2S1

IEC60601-1 Ed.3.1 approved

•Input-output: 2MOOP •Input-FG: 1MOOP

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

Size: **125×63.5×125** (W×H×D)

Output voltage	+3.3V	+5V	+12V	-12V	+5VSB
Maximum current/ Maximum power (continuous)	16A	16A	25A	0.5A	2A
	Total 90W		300W	6W	10W
	Total 300W				
	Total 310W				
Peak current/ Peak power (within 5 s)	20A	20A	30A	0.5A	3A
	Total 120W		360W	6W	15W
	Total 385W				
	Total 400W				
Minimum current	0A	0A	0A	0A	0A

Main 24pin ×1 · Main 20pin ×1 · 12V 4pin ×1 · 12V 8pin ×2 · PCI-E 6pin ×1

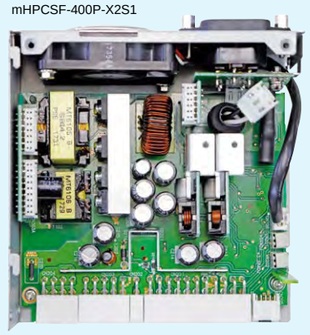
HDD ×5 · S-ATA ×7 · FDD ×1

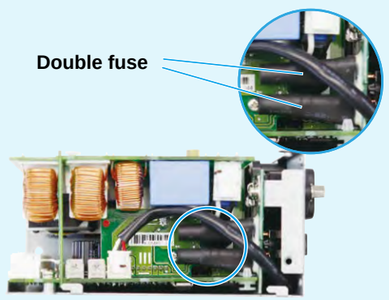
* Maximum number of respective connectors. For details, please check them on HP, with product catalogues, etc.

Excellent layout design to achieve high reliability

In order to achieve high reliability that is required to medical equipment, the power supplies adopt the excellent layout, and are produced in Japan. Also, severe product evaluation tests are conducted thoroughly to find weaknesses, which are then eliminated to maintain high quality.

mHPCSF-400P-X2S1





Solid track record both in Japan and the world! Nipron's PSU for medical PC *http://www.nipron.com*

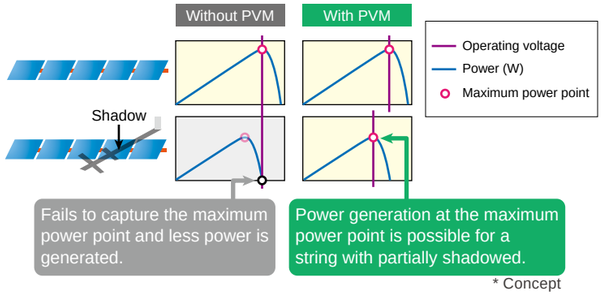
Panel layout freedom eliminates power generation issues caused by shade.

PV MAXIMIZER

Maximizing the power generation

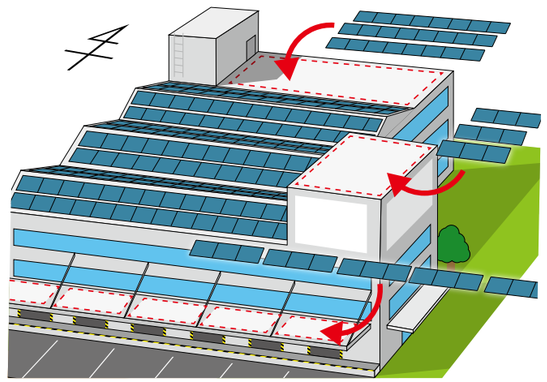
Unfold the power generation capacity, PV Maximizer

Deterioration of PV panels or shadows falling on them will lead to a drop in the voltage. This also affects the voltage of normal strings, resulting in a drop in the power generation. PV Maximizer eliminates the voltage gap between strings by increasing the fallen voltage of affected strings to the voltage level of other strings maintaining the maximum power point, making it possible to extract the maximum power from panels available for power generation and, thus, potentially leading to an increase in the revenue from the sale of electricity. It is also possible to construct a high-precision monitoring system, PV Guardmyan, that diagnoses the I-V and P-V curves of each string remotely



* Concept

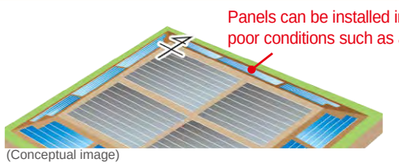
PV Maximizer brings out the best in a variety of scenes



More effective in locations with poor conditions

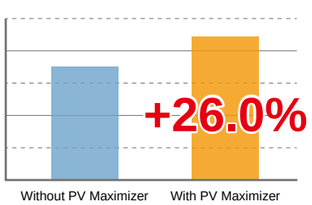
It is possible to install panels even in a location with poor conditions like a slope facing north. Depending on the condition, the number of panels may be increased of 150 to 200% from the conventional design, resulting in a significant increase in the power generation. Because it is possible to arrange panels without worrying about the number of panels, bearing or shades, the PV Maximizer is effective in the installation of panels even on a factory roof.

Panels can be installed on the north face



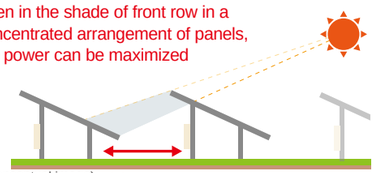
(Conceptual image)

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



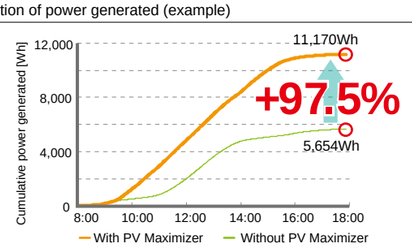
Minimize the effects of shadows

Even in the shade of front row in a concentrated arrangement of panels, the power can be maximized



(Conceptual image) Narrow ... power generation per unit area increases

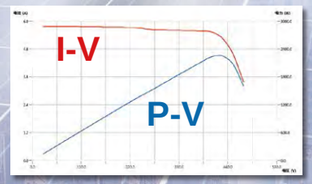
Transition of power generated (example)



PV Maximizer, an essential item for PV power generation *http://www.nipron.co.jp/*

Reduces risk of lost opportunity. Lowers maintenance costs.

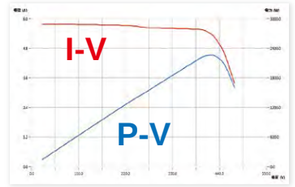
PVGuardmyan



High-precision detection of drops in the power generation

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.

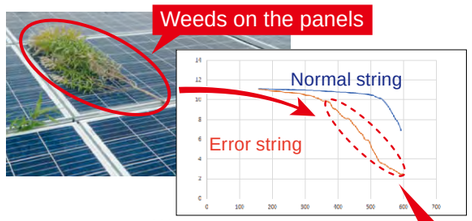
PV Guardmyan manages and analyzes big data, including the power generation for each string measured by the PV Maximizer and characteristics curve (I-V characteristics curve) reflecting the health of each string, detects problems and their signs remotely and reports them.
The system offers monitoring power storage systems, cloud-based diagnosis and remote control of charging/discharging operations. This makes it possible to reduce the burden of field service works such as addressing problems on site and save the maintenance cost, in addition to reducing the power generation loss by detecting problems at an early stage.



I-V curves obtained by the PV Maximizer (Image)

There are many problems that could be found by performing an in-depth inspection with the I-V curve measurement. There is 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)” also in the Guidelines of Photovoltaic Power Generation System Maintenance and Inspection (JM16Z001).

Early detection of the power generation error Various power generation errors are discovered.

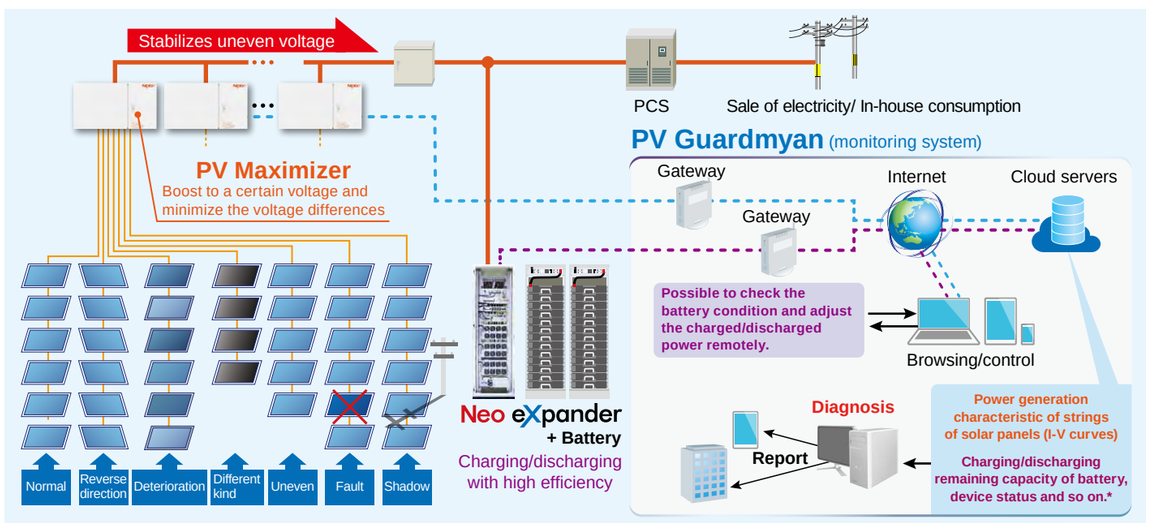


I-V curve comparison

Shadow of an array on the panels

Burnout of the connector

Monitor a solar panels and a battery together PV Maximizer +Neo eXpander+PV Guardmyan

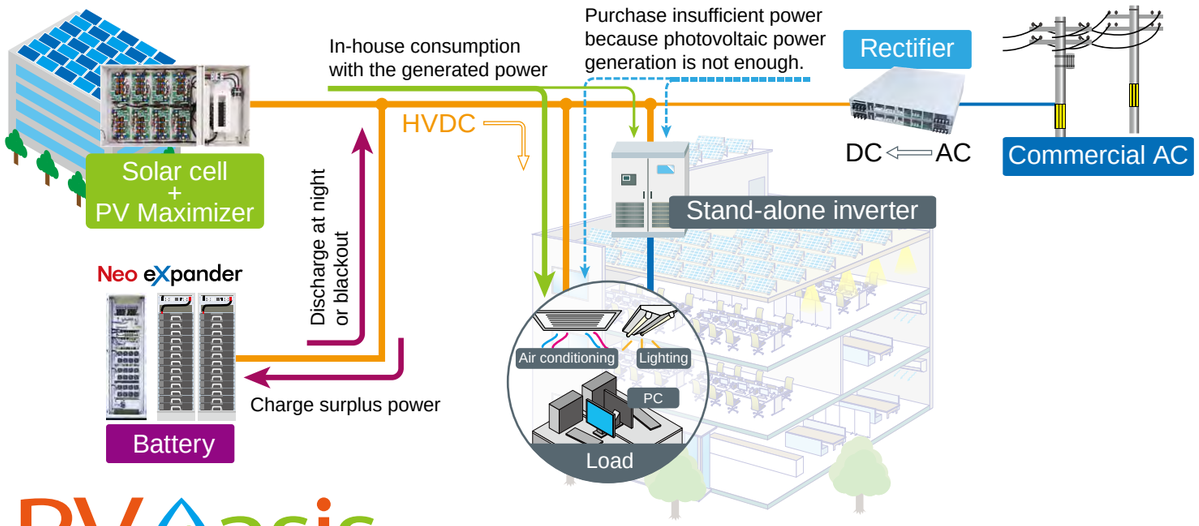


* To be supported

Daily simultaneous remote diagnosis detects the power generation error in early stage. *http://www.nipron.co.jp/*

Solving the problems of grid-connected in-house power consumption

In-house power consumption of power stored in battery system without a grid-connection



PV Oasis offers its own various solutions

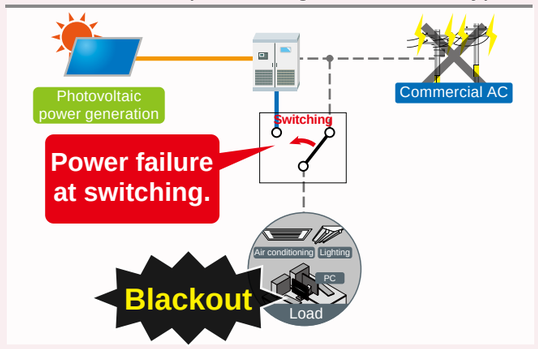
PV Oasis	4. RPR not required as inverse current will not occur	8. Advanced ZEB
1. Uninterrupted supply of power	5. Cubicle modification not required	9. Parallel supply of AC and DC power
2. Parallel operation with a standby power generator	6. Additions and expansions are easy	10. Power consumption peak cut
3. Negotiation for the grid connection not required	7. Off-the-grid systems	11. Demand Response

1. Uninterrupted supply of power

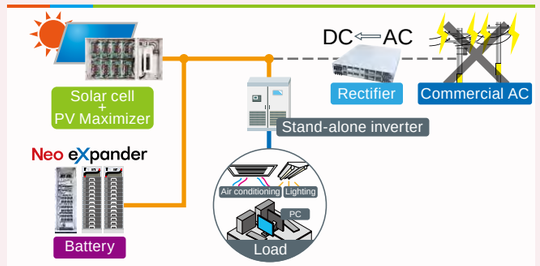
Avoid blackout trouble

In in-house power consumption with a grid connection, the power supply would be interrupted in switching the operation to independent operation should there be a power failure on the grid.
Because the PV Oasis runs independently all the time, the power supply will be maintained without an interruption.

In-house consumption with grid connection type



PV Oasis



It is stand-alone system all the time, so switching is not required.

There will not be power failure.

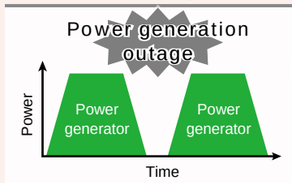
The in-house consumption of PV power stored in battery “PV Oasis” have many advantages of introduction *http://www.nipron.co.jp/*

2. Parallel operation with a standby power generator

Long-hour operation by reduction of the fuel consumption

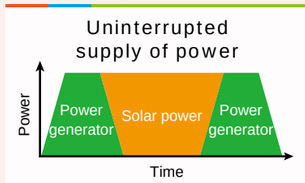
As the standby power generator and the solar power can be used parallelly, rather than switching, a stable operation is possible for a prolonged period while securing the required power and reducing the fuel consumption.

In-house consumption with grid connection type



Long-hour operation is difficult because of the stop for fuel supply

PV Oasis



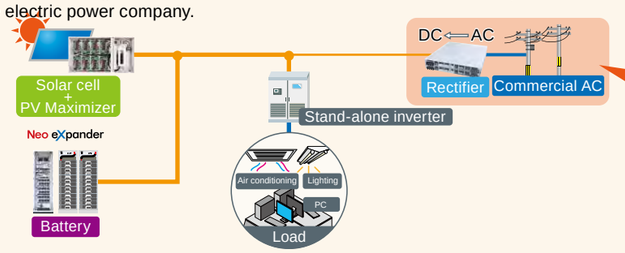
Photovoltaic power generation
+
Power generator

Extend the operation time of the power generator

3. Negotiation for the grid connection not required

Workload reduction

Discussion on the grid connection which takes time and effort is not required and it can be started to operate only with report to the electric power company.



Discussion on the grid connection is not required because it is only connected as a load.
Smooth introduction is achieved.

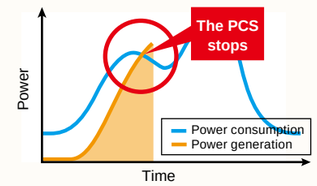
4. RPR not required as inverse current will not occur

Avoid troubles due to RPR and reduction of the initial cost

Because of an independent system without a grid connection, there will be absolutely no inverse current even if the power generated exceeded the power consumed, making it unnecessary to install an RPR.
For this reason, the system is effective in the reduction of initial cost and avoiding the power loss associated with the RPR operation.

In-house consumption with grid connection type

■ PRP operational concept



If power generation is higher than power consumption, inverse current that the electricity power flows to the power system side will occur. When inverse current occur, PCS and power generation will be stopped because of operation of RPR.

PV Oasis

It is a stand-alone system with non-grid connected,

thus the inverse current will not occur and RPR is not required.
It can avoid troubles and reduce the initial cost.

5. Cubicle modification not required

Elimination of restrictions and prohibiting factors for the installation & reduction of installation cost

Because of no grid connection, devices for the connection (such as OVGR and RPR) will be unnecessary, eliminating the need for modifying the cubicle.
Sometimes, only a connection to the distribution board may be sufficient and it is possible to reduce the cost and time for the installation.

In-house consumption with grid connection type

Because modification of the cubicle involves a lot of expenses and manpower, many subcontractors are negative about it.

PV Oasis

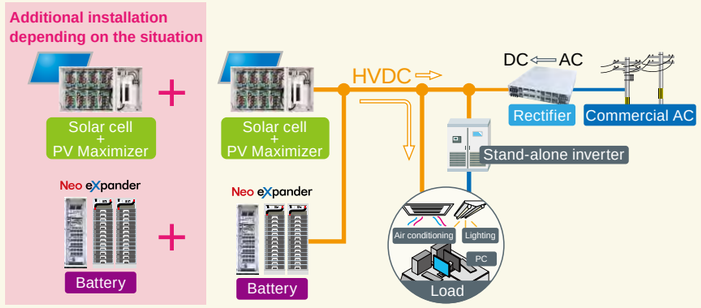
Reduction of construction costs or construction period

Contribute to avoid power generation loss at RPR operation. *http://www.nipron.co.jp/*

6. Additions and expansions are easy

Distributed investment
& curbing the modification cost

It is easy to install afterwards or add solar panels or battery. It is possible to support flexibly for changes of the load capacity.



Understand the usage of power and introduce an optimal battery

Addition of system due to increasing the load capacity

Divided installation of the equipment depending on annual budget

7. Off-the-grid systems

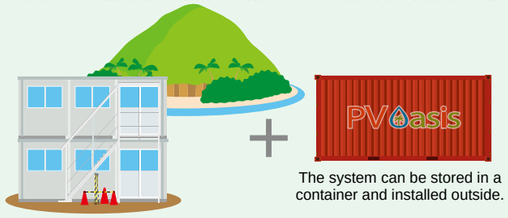
Reduction of construction period
or installation cost

Operation is easy and economical even at a location without the power grid.
It can be used in a variety of scenes including areas without the power supply, where a large amount of cost would be involved for the installation of power supply system and as a standby power for facilities for emergency response.

Installation of power supply system in areas without the power supply, remote locations and isolated islands is expensive and difficult.

The construction period or installation cost can be saved because electrical wiring is not required. It can be installed easily by competitive costs in the undeveloped infrastructure area.

Effective as a power supply system for locations where securing the power source is difficult, such as a mobile onsite office for construction work.



The system can be stored in a container and installed outside.

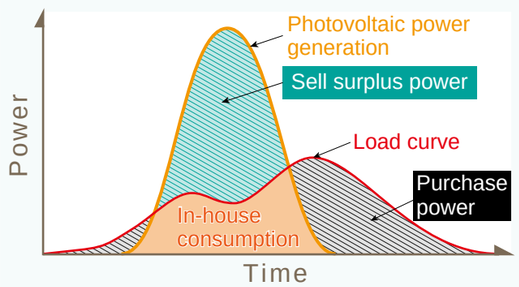
8. Advanced ZEB

Differentiation as an advanced facility
& enhancing the corporate image

It is easy to build a system aiming at a true “zero energy building” rather than a “net zero energy building.”
The system can be used to differentiate proposals for the construction of advanced buildings, attract more people’ s eyes and utilize public subsidies.

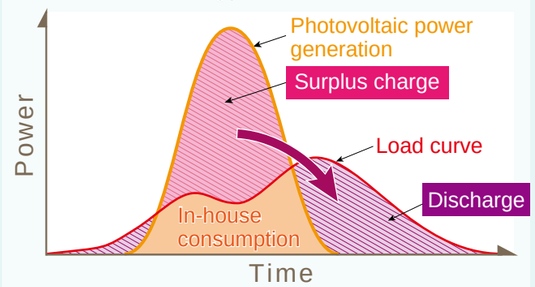
Common ZEB

“Net zero” energy consumption is attained by “cancelling” the power “bought” in the morning, in the evening and at night with the excess power “sold” during the day.



PV Oasis Advanced ZEB

An “advanced ZEB” is realized by “eliminating” the purchase of grid power by “storing” the excess power during the day and “discharging” it in the morning, in the evening and at night.
The system can be used to differentiate the building as an advanced work in utilizing public subsidies.

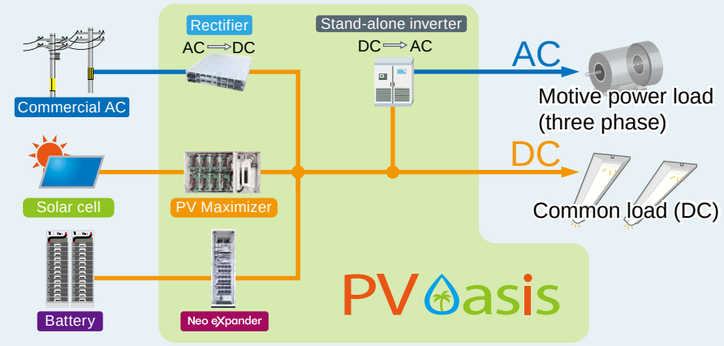


Achieving Advanced ZEB rather than Net Zero *http://www.nipron.co.jp/*

9. Parallel supply of AC and DC power

It is possible to support
flexible for the load.

It is easy to supply both AC and DC power at the same time. The DC power supply can be used to differentiate the building as an advanced work in utilizing public subsidies.

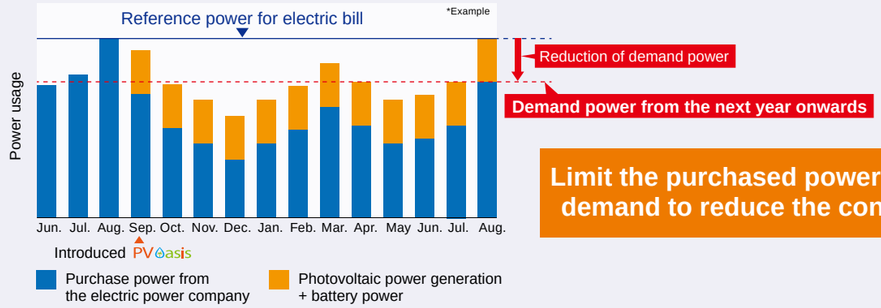


Simultaneous supply of AC and DC power is easy

10. Power consumption peak cut

Reduce electricity bill

Reduce the electricity charge by smoothing the purchased power for a momentary peak demand.

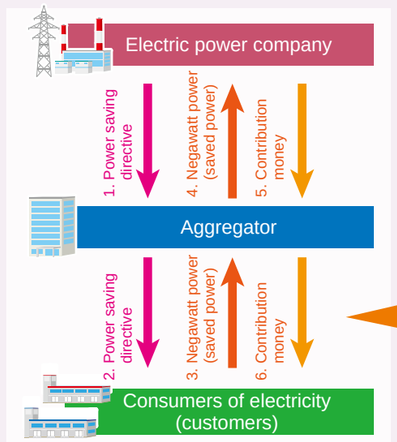


Limit the purchased power and reduce the demand to reduce the contracted power.

11. Demand Response

Increase income by contribution
money of Demand Response

By saving the purchased power using PV Oasis in accordance with the DR command in times of shortage against the demand, it is possible to gain an income for the cooperation in saving power.



What is a demand response?

The demand response (DR) is a concept that a similar effect can be gained by reducing the consumption at the users instead of changing the power generated to maintain the balance in the supply and consumption of power.
The scheme of paying a reward for the cooperation when a user complies with a request of the utility company to reduce the power consumption is called “negawatt trading” and has been implemented as an actual business since April 2017.

Saving power with PV Oasis is possible to control supply power of electric power company and gain an income for the cooperation.

Meeting a variety of customer needs with PV Oasis *http://www.nipron.co.jp/*

Invitation to Web exhibition

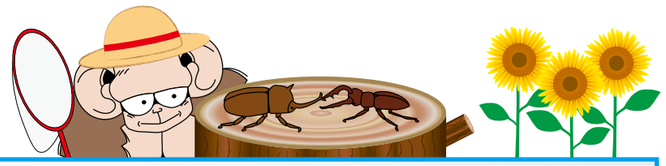
SOLAR EXPO ONLINE

Today, it is difficult to meet customers in person and propose Nipron's PV power solutions in view of containing the novel corona-virus infection.
Therefore, Nipron will participate in the SOLAR EXPO ONLINE, which will be held on the net for three months from the 1st of July to the 30th of September.
This exhibition is an online exhibition for devices relevant to PV power generation, in which manufacturers, EPC contractors, utility companies and investors will congregate. Because it is a "permanent" exhibition thanks to the scheme of online exhibition, people can visit it anytime and as many times as they wish.

On the Nipron page, the in-house power consumption of PV power stored in battery system, PV Oasis, will be presented. In addition to the fundamental advantages of in-house power consumption, such as enhanced resilience and protection of environment, it offers a variety of advantages, such as "uninterrupted supply of power", "parallel operation with a standby power generator", "RPR not required as inverse current will not occur", "cubicle modification not required" and "negotiation for the grid connection not required". If you are considering in-house power consumption or have any problem, please do visit the Nipron page.

PV Oasis

Please see the page 9-12 for advantages of PV Oasis.



New employees

12 new employees joined Nipron in this year.

One person participated by video conference.

We welcomed a total of twelve newcomers, three college graduates with humanity majors, four with science majors and five high school graduates, who are expected to be the force to steer the future of Nipron. At the initiation ceremony, followed by instructions of President Sakai, three Vice Presidents and officers, a declaration of resolution was made by each newcomer to mark the new start as a member of the society.
The training schedule for this year's newcomers started with a classroom session in April, in which they learned business manners and undertakings of each department presented by the department head, as well as fundamentals of electronics and Nipron's power supply units presented by older employees. In May and June, they were grouped in the humanity and science majors and the humanity majors received a training in the sales department on the sales promotion activities and how to carry out a market survey on the demand for power supply units, while the science majors received a training in the engineering department, in which they built a power supply unit from scratch. Each of them made a presentation on the result in front of the president and each department head and were assigned a suitable job.

[Humanities]
Creating presentation materials about power supply

[Sciences] Training of producing power supply

A scene from the presentation of the results

Invitation to exhibition

7th INT'L SMART GRID EXPO Osaka

Held inside World Smart Energy Week OSAKA 2020

7th INT'L
SMART GRID EXPO
OSAKA

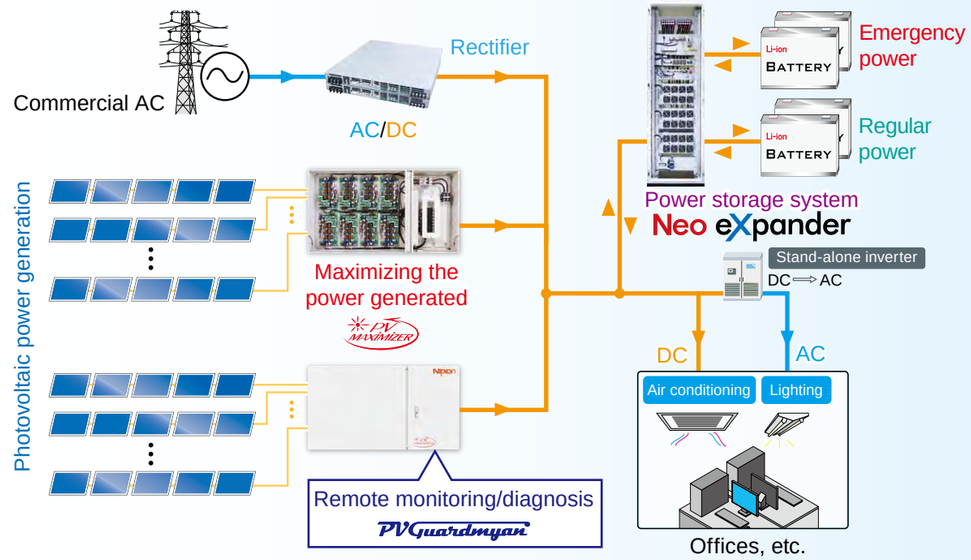
Event date: September 9 (Wed)–11 (Fri), 2020
Venue: INTEX Osaka

Nipron booth last year

Nipron will take part in the 7th INT'L SMART GRID EXPO Osaka, which will be held for three days from 9th to 11th of September at INTEX Osaka. This exhibition specializes in and collects all products and technologies required to build smart grids and distributed energy systems.

Because the economic advantage of "using" the power generated is getting larger rather than "selling" it and because of frequent appeals made on the environment-friendly management by consuming the PV power in-house in the BCP, a plan to continue the business in an event of a large-scale power failure due to disasters like earthquakes and typhoons, and initiatives of SDGs, RE100 and ESG in and out of the country, the in-house power consumption is attracting a large attention.
At the Nipron's booth, therefore, the main focus of presentation is on the in-house power consumption of PV power stored in battery system, PV Oasis. With the PV Oasis, it is possible to supply the power stored in the rechargeable battery without an instantaneous interruption. By sparing a part of rechargeable battery for the backup power continuously, it is optimum for an operation as a BCP measure and contributes for enhancing the resilience of corporation. Because the PV Oasis, which is different from the common in-house power consumption, does not connect to the grid, there will be no inverse current, enabling a low-cost system without RPR and eliminating the need for negotiation for the grid connection. Other products presented include PV Maximizer, which maximizes the power generation, PV Guardmyan, which is a high-precision remote monitoring & diagnosis system capable of detecting problems on the panel and other signs, and Neo eXpander, which is a charging/discharging rack for medium to large-scale power storage systems that is capable of monitoring the battery capacity remotely and can be used for storing excess power and emergency responses. If you are considering in-house power consumption or have any problem, please do visit the Nipron booth.

The case of PV Oasis in-house consumption system



*We are pleased to send invitation to the exhibition to customers who are interested in it.
Please do not hesitate to contact us.
Our contact: Sales Division, Nipron Co., Ltd.

TEL: 06-6487-0611 FAX: 06-6487-0523
E-MAIL: support1@nipron.co.jp

The Nipron Story, by Our President

Only those who can change themselves according to the environmental changes can survive!

We appreciate all medical workers at the forefront to fight against the new coronavirus infectious disease. Thank you very much.

Japan is currently in a lull in the new coronavirus infection but is on the alert for the second and third waves of the pandemic. On the other hand, the pandemic continues to spread from Europe to the United States and Latin America, thrusting the world into a difficult situation. As of June 23, the number of confirmed cases has surpassed 9 million and the death toll has reached 480,000 worldwide, with the United States and Brazil accounting for more than 40% of the total. The new coronavirus pandemic started in Wuhan of China, exploded in South Korea and Japan in East Asia. In Europe, it exploded in Italy, spread to France, Germany, the United Kingdom, and further to the United States, which has by far the largest outbreak, and Russia. The coronavirus landed in the Latin America and the outbreak is continuing in Brazil. Seeing this situation from a higher perspective, it seems to be similar to the flow of humans who travel long distances seeking food. I felt that the spread of the new coronavirus infection and the development and expansion of habitation of humans have a kind of commonality and regularity as to how they spread and disperse like the same life form.
Similarly, grasshopper, a troublesome insect, has swarmed, devoured agricultural products and proliferated, heading north from Africa and expanding and moving to Pakistan, India, Asia, and China on seasonal winds. This is also a scary phenomenon. These anomalous phenomena, including the new coronavirus, may be a warning to human beings for their continued environmental destruction, such as increased CO2 emissions. I feel that we should strongly be aware of ESG.

Considering the future of Japan, an array of recent news and events raise concerns that there may be serious economic and social problems after the new coronavirus pandemic.

The Japanese national character is diligent, disciplined, ethical, conservative, and governable. It is common to all companies and nations that, from a historic perspective, if there is a good leader and a proposition that becomes a common understanding, they will be united as a big energy and move toward the same good direction. However, as it is now, with political leaders who cannot talk about a national vision, its people will remain out of touch with their responsibilities about the future and we will find ourselves on the path to an economically small country.

I cannot stand looking at diligent, excellent and lovable small and medium-sized enterprises, which were also the strength of Japan, go out of business one after another due to the government's policy falling behind the curve amid the new coronavirus pandemic.

Meanwhile, how about our company Nipron? I have worked constantly on our company's reform with dreams and visions trying to break with the woes of small and medium-sized enterprises, which I have seen more than enough over the years, and thinking about what is important so we will not be eliminated in today's tough times. Our strategic policies and implementation result thereof are now building a stable foundation. Our efforts of "always looking ahead of the changes of the times to lay the foundations for the period 3 to 5 years from now" are producing results almost as expected. Regarding the GP business, we have been advancing product and business development by inferring the future since 7 to 8 years ago; it won't be long before the business gets a big break. However, if the Japanese nation goes into a decline or loses its economic strength significantly, its industrial base will shrink further and the market will disappear. If that happens, since there is a limit to how much efforts we can make, we may face difficulties.
Nevertheless, our company will keep taking on the challenge to become "permanently sustainable Nipron" in pursuit of the way to survive.

Darwin said in his theory of evolution, "it is not the strongest that survives," "it is not the most intellectual one that survives," but "the species that survives is the one that can keep up with and adapt itself to the environment changes." I think it is "Nipron" that continues to exist.

Setsuo Sakai
July 2020

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