

UPS function removable type  
Nonstop ATX power supply

# Excellent Nonstop DC Power Supply

## Instruction manual

Model eNSP-300P-S20-00S  
eNSP-300P-S20-11S

The first edition

Nipron Co.,Ltd.

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## 1. Attention in safety

Use it properly after you read Attention in this safety well before the use.

The precaution shown here prevents you from harming to other people and damage by using this power supply system safely and properly. The precaution divides the contents, when it is presumed that the wrong handling is made, in order to indicate the size of the harm and the damage and the degree of the urgency clearly, into "the danger", "warning" "attention". Be sure to keep it because they are the contents, which are important about the safety.

An eNSP power supply consists of a power supply and a battery pack, and a battery pack is required for Nonstop power supply operation, as shown in this manual.


 Danger	In case of wrong handling, a user dies or suffers a serious injury (*1) and the degree of urgency is high.
 Warning	In case of wrong handling, the degree is presumed that a user dies or suffers a serious injury (*1).
 Attention	In case of wrong handling, the degree is presumed that a user suffers a injury (*2) or occurrence of the material damage (*3).

(\*1): Serious injury means loss of eyesight, injury, burn (high temperature, low temperature), poisoning, sequela, treatment, hospitalization, seeing a doctor for long time.


(\*2): The injury means a burn, an electric shock, and so on that hospitalization and long-term seeing a doctor regularly for the treatment are not necessary.

(\*3): As for the material damage, it means at the expansion damage concerned with the furniture, household belongings, the livestock, pet, and so on.


### Attention in safety on the eNSP power supply

 Warning	<ul style="list-style-type: none"> <li>• Don't use when smoke comes out from the power supply and has a bad smell and sound with the unusual condition. They become the cause of an electric shock and the fire.</li> <li>• Don't take the power supply to bits. They become injury, heating up, catching fire, and the cause of the electric shock.</li> <li>• Don't contact a metal part and a metal stick to the terminal part of the power supply and the part of circuit board. They become injury, heating up, catching fire, and the cause of the electric shock. Be careful when you install it specially.</li> <li>• Don't insert anything from the opening of the power supply into the inside, and don't drop it. And, don't use it with such condition. It causes heat and fire. Be careful when you install it specially.</li> <li>• Don't use a power supply under the condition of water condensation. It causes heat, fire and an electric shock.</li> <li>• Don't close the ventilation holes of the power supply. It causes catching fire.</li> <li>• Don't make output terminals short-circuit. They become catching fire and the cause of the electric shock.</li> </ul>
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## Attention in safety on the eNSP power supply (Continue)

 Attention	<ul style="list-style-type: none"> <li>• The earth of eNSP should be connected to ground. If it isn't done, the power supply may not comply with specifications and it causes an electric shock.</li> <li>• Don't handle a power supply by wet hand. They become the cause of injury and the electric shock.</li> <li>• Don't put a power supply on the water and the seawater, and don't get it wet. They become the cause of injury and the electric shock.</li> <li>• Don't leave a power supply in the high temperature. It causes a heat and catching fire.</li> <li>• Don't plug in or connect and put out the AC power supply cord, the RS232C cable, and each connector of the power supply during the eNSP power supply operation. They become a trouble and the cause of the electric shock.</li> <li>• Don't turn off the switch of the power supply during the PC operation. It sometimes damages a PC. There is risk of the data destruction when a switch is turned off while a storage device such as a hard disk drive works specially.</li> <li>• Don't use it under the condition that is removed from the PC chassis. They become the cause of an electric shock and the trouble.</li> <li>• Don't repeat ON/OFF of the power supply frequently. It causes a trouble.</li> </ul>
Recommendation	<ul style="list-style-type: none"> <li>• Don't tear off the seal label of the power supply. Be careful because it becomes out of the guarantee when a seal label is torn off.</li> </ul>

## Attention in safety about the battery pack for the nonstop power supply

 Danger	<ul style="list-style-type: none"> <li>• Don't take the battery pack to bits and don't remodel it. They become leaking liquid, the cause of a heat, the explosion, and catching fire.</li> <li>• Don't contact metal part and a metal stick to the terminal of the battery pack and the circuit board. They become leaking liquid, the cause of a fever, the explosion, and catching fire. Be careful when you install it specially.</li> <li>• Don't throw a battery pack into the fire, and don't heat it up. They become leaking liquid, the cause of a fever, the explosion, and catching fire.</li> <li>• Don't use with the unusual condition that smoke comes out from the battery pack and has a bad smell and different sound . They become leaking liquid, the cause of a fever, the explosion, and catching fire.</li> <li>• Don't insert anything from the opening of the battery pack into the inside, and don't drop it. And, don't use it with such condition. They become leaking liquid, the cause of a fever, the explosion, and catching fire. Be careful when you install it specially.</li> <li>• A battery pack is only for nonstop power supply. Never use for other equipment and applications. They become leaking liquid, the cause of a fever, the explosion, and catching fire.</li> <li>• See the doctor immediately after you wash eyes with the clean water without rubbing because it causes loss of eyesight, when a leaked liquid of the battery was in eyes.</li> </ul>
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Attention in safety about the battery pack for the nonstop power supply (Continue)

 <p>Warning</p>	<ul style="list-style-type: none"> <li>• Don't soak a battery pack in the water and the seawater, and don't get it wet. It causes a heat and a trouble.</li> </ul>
 <p>Attention</p>	<ul style="list-style-type: none"> <li>• Don't leave a battery pack near the heating equipment and under the direct sunlight. It becomes the leakage of liquid, the cause of a heat, the explosion, and catching fire.</li> <li>• Keep it within the specification of the temperature and humidity when you don't use a battery pack for a long time. It sometimes causes leakage of liquid when it is kept out of the specification of temperature range.</li> <li>• Battery packs are expendable supplies. It sometimes becomes the leakage of liquid, the cause of a heat when the battery pack is used continuously after its life passed.</li> <li>• Don't connect and disconnect each connector of the battery pack during the operation of eNSP power supply. It causes a trouble.</li> </ul>
<p>Recommendation</p>	<ul style="list-style-type: none"> <li>• Don't tear off the seal of the battery pack. Because it becomes out of the guarantee when a seal is torn off.</li> </ul>

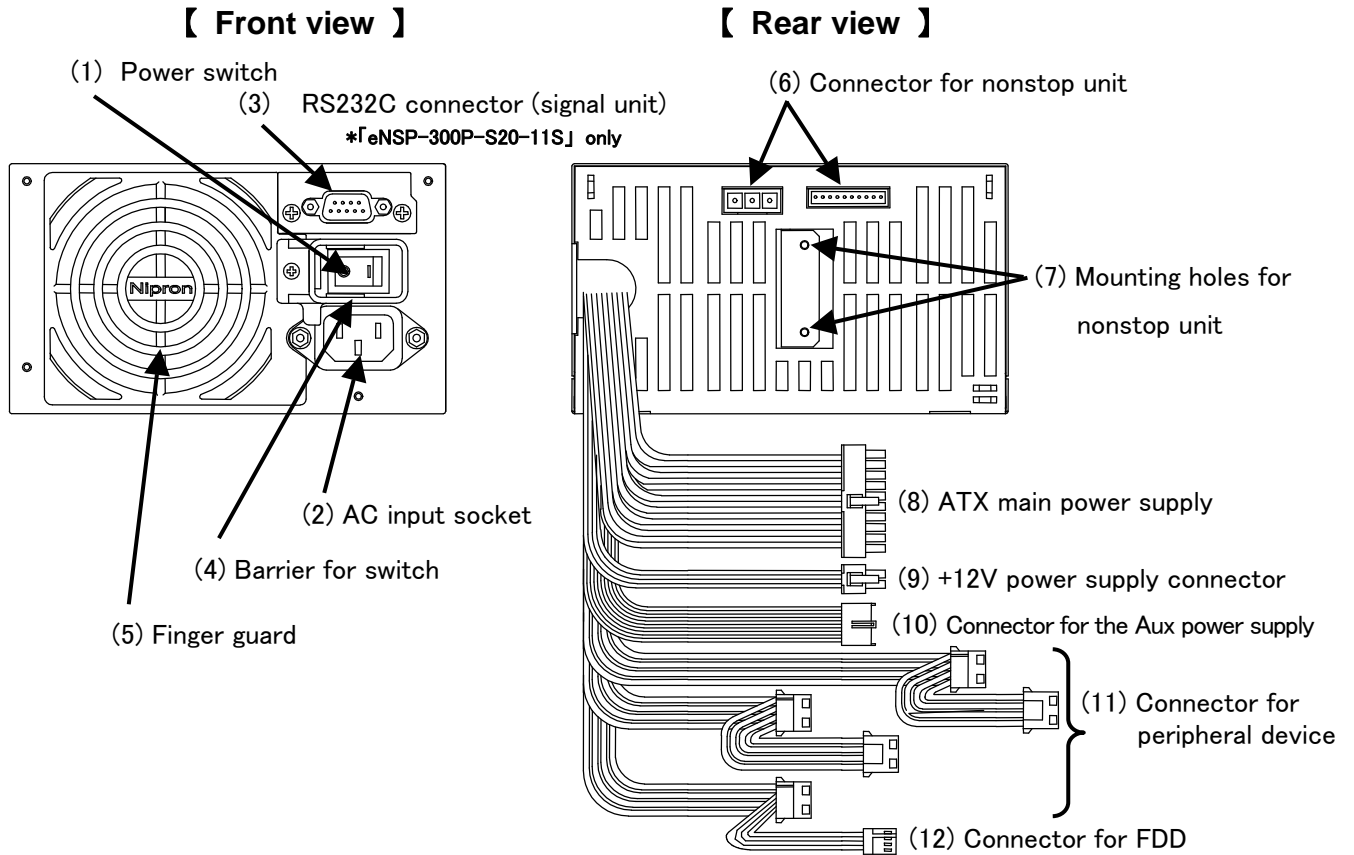
## 2. Use limitation

Don't use this system for the following uses.

- In such cases as the device concerned with the person's life directly (a machine for the medical treatment such as a life-sustaining equipment and a machine for the operating room)
- The use (railroad, operation control such as an aircraft, a vessel) concerned with the safety of the human body
- The device which gives a serious influence to the public function (in such cases as the control system of the power plant and the traffic control system)

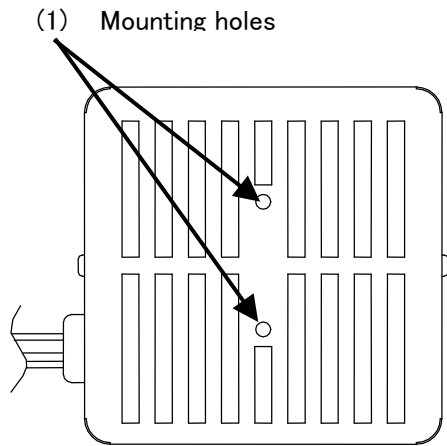
## 3. Name of each part and function

### Main part

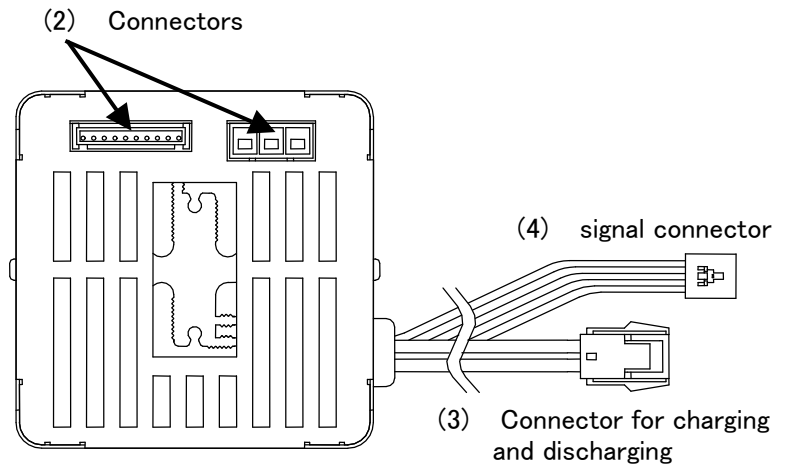


No.	Item	Function
(1)	Power switch	To make this power supply ON/OFF
(2)	AC input socket	AC power supply cord is inserted and the AC cord is to be plugged in for supplying electric power
(3)	RS232C connector (signal unit)	It is a connector for the communication between this power supply and PC motherboard. An exclusive RS232C cable is used. (「eNSP-300P-S20-11S」only)
(4)	Barrier for switch	It is the guard not to turn ON/OFF by mistake.
(5)	Finger guard	A fan is protected from the foreign substance.
(6)	Connector for nonstop unit	It is the connector, which connects Nonstop unit.
(7)	Mounting holes for nonstop unit	Nonstop unit is fixed with the screws.
(8)	ATX main power supply connector	It is connected to PC motherboard, and electric power is supplied.
(9)	+12V power supply connector	It is connected to PC motherboard, and electric power is supplied. A power supply connector connects only to PC motherboard which prepares +12V input connector.
(10)	Connector for the Aux power supply	It is connected to PC motherboard, and electric power is supplied. Aux power supply connector connects only to PC motherboard which prepares Aux power supply input connector.
(11)	Connector for peripheral device	It is connected to the variety peripheral devices of PC installed, and electric power is supplied.
(12)	Connector for FDD	Electric power is supplied to the floppy disk drive of PC.

【 Front view 】



【 Rear view 】



No	Item	Function
(1)	Mounting holes	It is the mounting holes to install nonstop unit.
(2)	Connectors	It is the connector, which connects to a power supply.
(3)	Connector for charging and discharging	It is connected with the connector of the battery* for charging and discharging.
(4)	signal connector	It is used when the customers design PC board and need to communicate between PC and the power supply in TTL signal level.

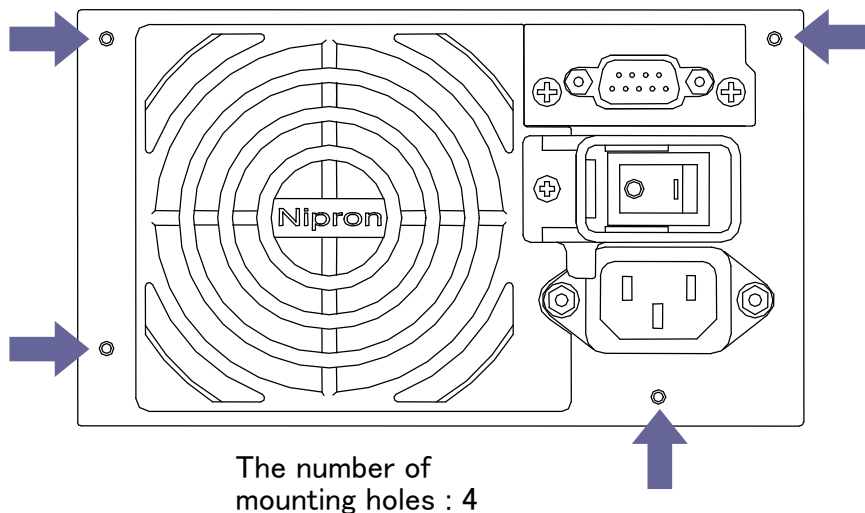
\*It is an option part. See Section 7.Option parts on the page 13.

## 4. Installation procedure

### 1. How to install eNSP power supply on the PC chassis (complying with ATX)

① The cover of a PC chassis is removed, and a power supply is installed using four screws.

\* How to remove the cover from the PC chassis should read and follow the PC chassis instruction manual



② The battery pack is fitted to PC chassis (5-inch-bay).

(「eNSP-300P-S20-11S」 only)

\* The battery pack is an option part. See Section 7.Option parts on the page 13 for further information.



Attention: Confirm that a power switch is off at this time.  
Be sure to turn it off when it is not off.



Attention: Be sure to use the screw of M3x6.



## 2. eNSP power supply and PC motherboard, and peripheral devices are connected

- ① ATX main power supply connector (P1), AUX power connector, +12V power connector (P8) to be connected to PC motherboard.

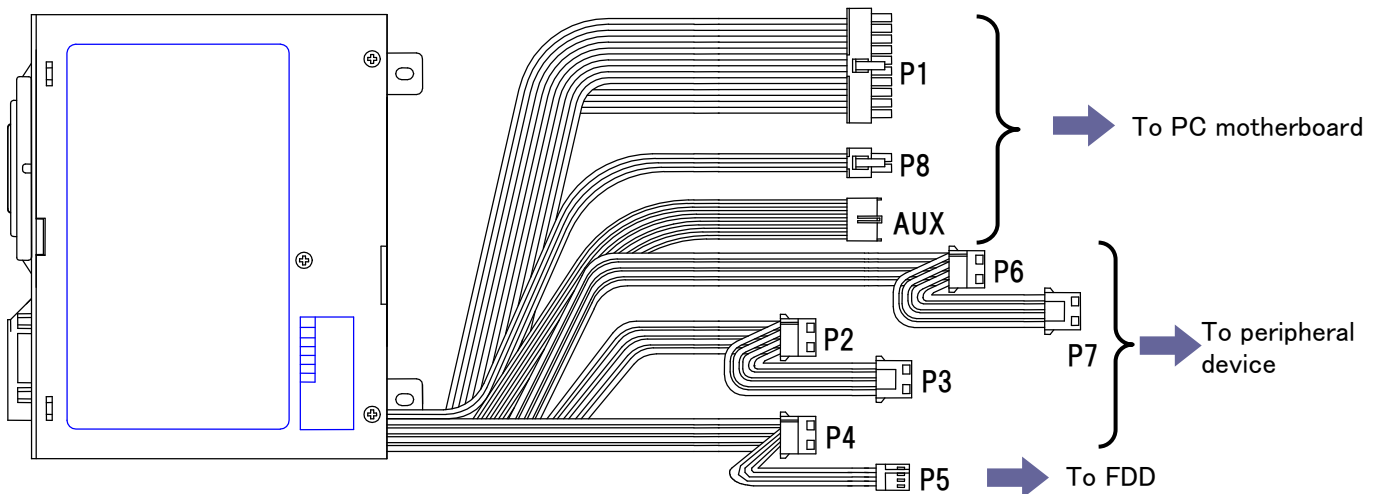
\* When there is an exclusive connector in PC motherboard, +12V power connector and AUX power connector can be connected.

- ② Connectors for peripherals(P2、P3、P4、P6、P7)are connected to peripherals and a connector (P5) is for FDD (Floppy Disk Drive).

\* Bundle the rest of all connectors.

- ③ Each peripheral and PC motherboard are connected.

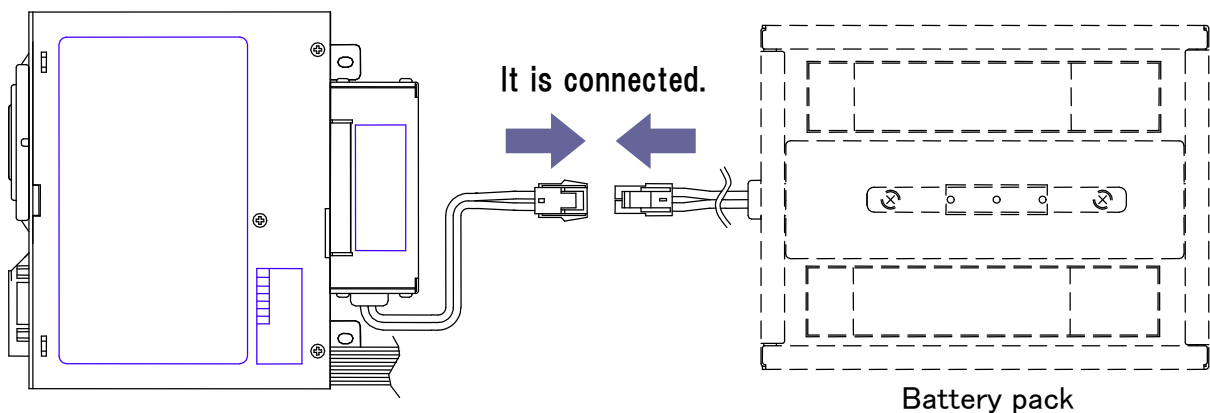
\* Read the instruction manual on how to connect to peripherals.



## 3. An eNSP power supply and a battery pack\* are connected.

(「eNSP-300P-S20-11S」 only)

The charging and discharging connector of the eNSP power supply and the connector of the battery pack are connected.



\*It is an option part. See Section 7.Option parts on the page 13.

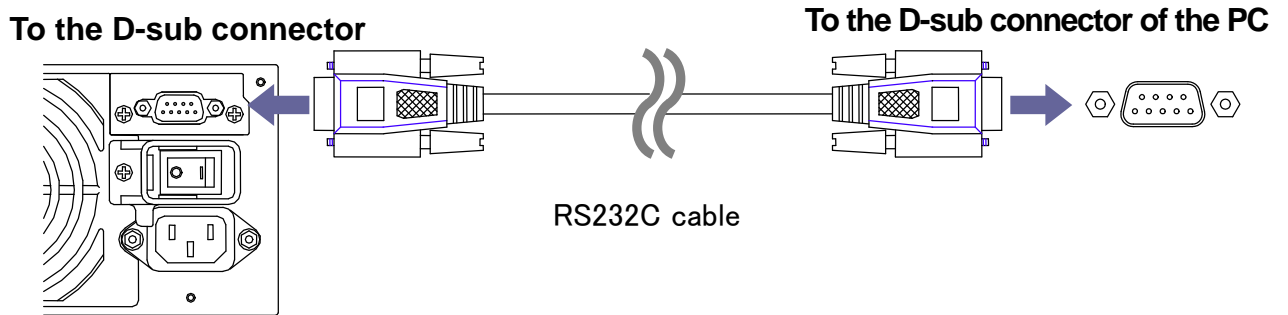
4. A personal computer chassis is assembled.

After the connection of all connectors is confirmed, a personal computer chassis is assembled.

\* It is to follow the instruction manual of the personal computer chassis how you assemble it.

5. The connection of the RS232C cable\* (「eNSP-300P-S20-11S」 only)

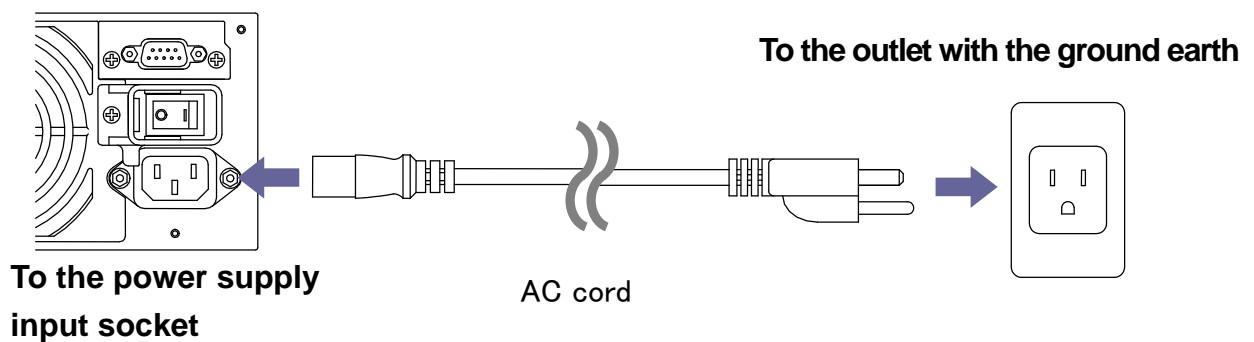
When communication is done by using the RS232C cable, a PC and the D-sub connector of the eNSP power supply are connected with the RS232C cable



\*It is an option part. See Section 7.Option parts on the page 13.

6. An eNSP power supply and an AC source are connected.

Before an AC cord\* is connected to the input socket of the eNSP power supply, it should confirm that a power switch is off, and then it can be connected to the AC source.



Attention: AC cord should have a wire to ground earth connection.

If you don't connect an earth wire to the ground, the power supply may not comply with the specifications, and it may cause electric shock.

\*It is an option part. See Section 7.Option parts on the page 18.

## 5. How to operate

### ■ The power supply operation

#### 1. To make eNSP on

The power switch of eNSP is made on from off. At this time, a fan begins to work at low speed. When the nonstop unit works, the charge of the battery pack is started.



Attention: When right after the purchase of the eNSP or the power switch of the eNSP being turned off for a long time, should turn on a power switch and charge the battery for more than 10 hours because the battery is low. If the charge is insufficient, back up time becomes short.

#### 2. The personal computer operation

Make the front switch of a personal computer on\*. A personal computer starts to work.

\* The signal of the power supply ON is sent from PC motherboard by making the front switch on.

This function is provided with ATX motherboard.

### ■ Power OFF

#### 1. A power supply stops by the OS closing (Becoming Stand-by status)

A personal computer stops with the OS closing when OS and PC motherboard have an ACPI/APM function. (All outputs are off except +5VSB output.) When OS and PC motherboard do not have ACPI/APM function, a personal computer stops by making the front switch off. A fan works at low speed at this status.



Attention: When a eNSP power supply is connected to AC power source through a extension cord with a ON/OFF switch and the switch is under off, please note that a battery won't be charged up.

## 2. eNSP power supply stops by a power switch OFF

When the power switch of eNSP is turned off, all the outputs of the eNSP, including 5VSB output, stop.



Attention: When the battery is under storage condition, at 35°C and 25°C, the battery should be recharged by the switch ON once every 3-month at 35°C and every 6-months at 25°C ambient temperature. If it won't be made, the battery might not come back to the original condition and get the original life.



Attention: Make the power switch off after the PC stops. It sometimes damages a PC when the power switch of the eNSP is turned off during the PC operation. There might be the data destruction when the switch is turned off while storage devices like HDD work specially.

## 6. Watch program for the power supply

A watch program for the power supply is necessary so that shutdown can be made the system automatically when a blackout occurs. (「eNSP-300P-S20-11S」 only)

A watch program for the power supply is as follows.

### 1. How to use power supply watch software

The power supply watch software, which our factory prepares

(It shows how to use "NSP pro for Windows 95/98" and "NSP pro for Windows NT")

#### ● OS

Windows 95/98

Windows NT3.51/NT4.0

#### ● How to install

See the instruction manual of power supply watch software enclosed.

### 2. How to use an uninterruptible power supply (UPS) service

It is the method to use UPS watch service of OS such as Windows NT and OS standards of windowsis.

\*A RS232C cable (PS2601-01: Windows NT, PS2601-02: windows2000/XP) is necessary.

#### ● OS

Windows NT / 2000 / XP

#### ● How to set up

##### ▪ Windows NT

Choose[Settings]→[Control panel]→[UPS]  
from the start menu, and set it up as follows.

①"Uninterruptible Power Supply is installed on" is checked, and the port is assigned.

②Check "Power failure signal" to be "Negative" and "Remote UPS shutdown" to be "Positive". "Low battery signal at least" isn't checked.

③A service starts when [OK] is clicked.

- Set up (continued)

- Windows 2000 / XP

Choose[Settings]→[Control panel]→[Power Options] from the start menu, and set it up as follows.

Clicks a tab of [UPS]. As UPS isn't chosen under the initial condition, the setup of [Select] and [Configure] is performed.

①Clicks [Select].

②Setup " Select manufacturer " to 「Generic」, " Select model " to 「Custom」, "On port" is assigned, and click [Next].

③Check " Power Fail/On Battery " to "Negative" and "Low Battery" to "Negative " and "UPS Shutdown" to "Positive".

Click [Finish].

④Click [Configure].

⑤Check " Enable all notifications", and set up "Seconds between power failure and first notification" and "Seconds between subsequent power failure notifications".

Check "Minutes on battery before critical alarm", and set up time.

Setup "Next, instruct the computer to:" to 「Shutdown」,and if there is an item of "Finally, turn off the UPS", click it.

Click [OK].

(If there is a tab of [APM], click it, and check "Advanced power management start".)

⑥A service starts when [Apply]or [OK] is clicked.

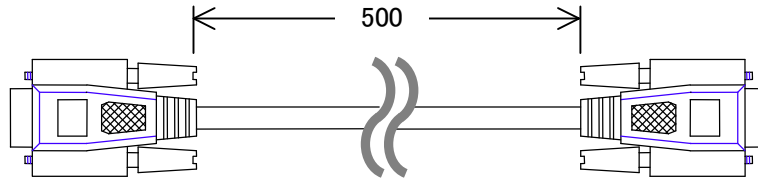
\* Suspend one program from [Service programs] when you start two programs at the same time because it doesn't work properly.

\* Windows 95, Windows 98, Windows NT, Windows 2000, and Windows XP are trademarks or registered trademarks not only in the United States but other countries.

## 7. Option parts

### 1. RS232C cable 「PS2601-01」, 「PS2601-02」

A RS232C cable is required for “Signals” between a power supply and a motherboard. PS2601-01 is for Windows95/98/NT, and PS2601-02 is for Windows2000/XP.



RS232C cable

### 2. battery pack 「BS05A-P24/2.2L」, 「RBS01A-P24/2.2L」

Use a specified battery pack for eNSP when you need to operate it as nonstop power supply. The specified battery packs are BS05A-P24/2.2L (Built-in type) and RBS01A-P24/2.2L (Removable type).

#### ■ Specified battery pack list

Model number	Type	Capacity	Size WD × H
BS05A-P24/2.2L (Built-in type)	Long life, and both vertical and horizontal installation type for 5 inch bay personal computer	24V/2.3Ah	146 × 190 × 37
RBS01A-P24/2.2L (Removable type)	Long life, and removable and horizontal installation type for 5 inch bay personal computer	24V/2.3Ah	146 × 245 × 42



Attention: Don't use other than the specified battery pack. Because eNSP power supply and a battery pack are likely to be damaged.

#### ■ Back-up time

Back-up time depends upon conditions as such charged-up level, temperature, and period of the use. As a reference, it could be 10 minutes at 100W output and 5 minutes at 150W.

\*Above back-up time is not guaranteed, just for a reference.

#### ■ Charge-up time

Time to charge-up takes about 10 hours from empty to completely fill it up.

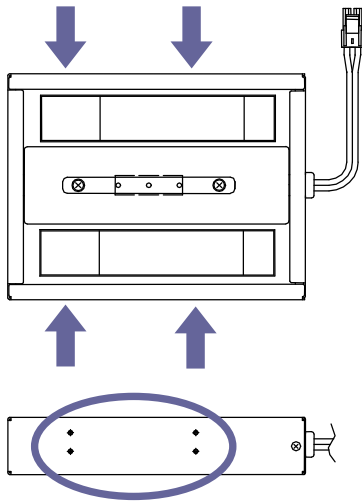
\*Remark that the Lead Acid battery won't recover to the original condition even if charging it up when it is empty (or it is not re-charged up for long time).

In this case, it might not be an enough life cycle.

■ The position of the mounting screw holes

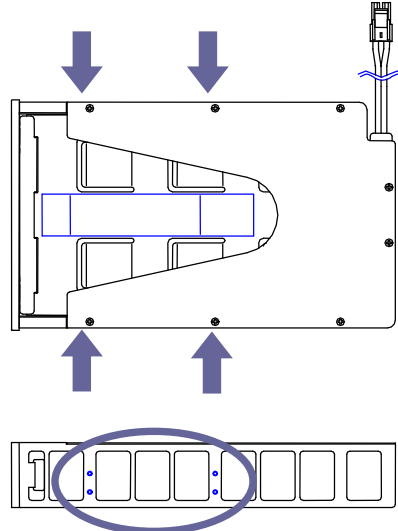
Install it referring to the position of the mounting screw holes for 5-inch bay of the bottom when you install a battery pack in the personal computer chassis.

【 Built-in type battery pack 】



Four holes at one side  
(Eight holes all together)

【 Removable type battery pack 】



Four holes at one side  
(Eight holes all together)

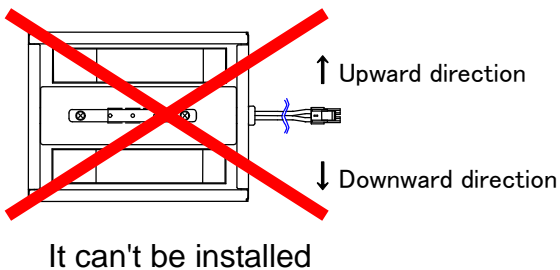
■ Installation direction



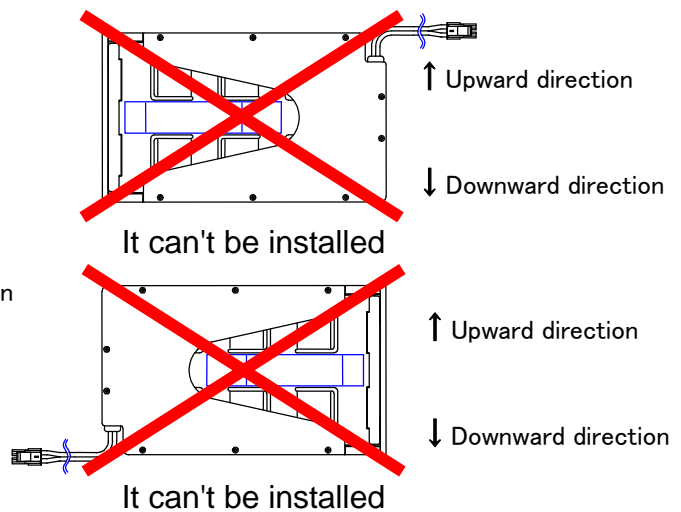
Attention: The battery pack uses the sealed type of lead acid battery, so be careful that you can't install the following direction due to the lead acid battery.

● The direction where it can't be installed

【 Built-in type battery pack 】



【 Removable type battery pack 】





## ■ Battery pack replacement

When the battery pack is used for a long time, its deterioration proceeds and it may not be recovered even if it is charged up. The expected life of the battery is about three-four years at the normal condition, however the life depends upon times of discharge/charge, temperature, and discharge amount.

When the battery replacement is too late, battery backup won't be made, therefore it is recommended that the replacement is made within three years regularly.

### The method 1 to replace [BS05A-P24/2.2L (built-in type battery pack)]

\* The method of replacement is different on BS05A-P24/2.2L and RBS01A-P24/2.2L. Refer to the method 2 to replace RBS01A-P24/2.2L.

1. The power switch is turned off, and AC cord is removed from the power supply input socket.



Attention: Off of the power switch is to be made under the PC stop condition. When the power switch of the eNSP power supply is turned off during the PC operation, it sometimes damages the PC. There might be the data destruction when the switch is turned off while storage devices such as hard disk drives work specially.

2. The cover of the personal computer chassis is removed.

When a built-in type battery pack is used, disassembling of the personal computer chassis becomes necessary.

\* How to disassemble a personal computer chassis is to follow the instruction manual of the personal computer chassis.

3. A battery charge and discharge connector is removed, and an old battery is removed.

4. Install a new battery pack, and a battery charge and discharge connector is connected.

5. A personal computer is assembled.

The connection of charge and discharge connector is confirmed, and a personal computer chassis is reassembled. The replacement of the battery pack is completed on the above.

※ Reassembling is to follow the instruction manual of the personal computer chassis how to do.

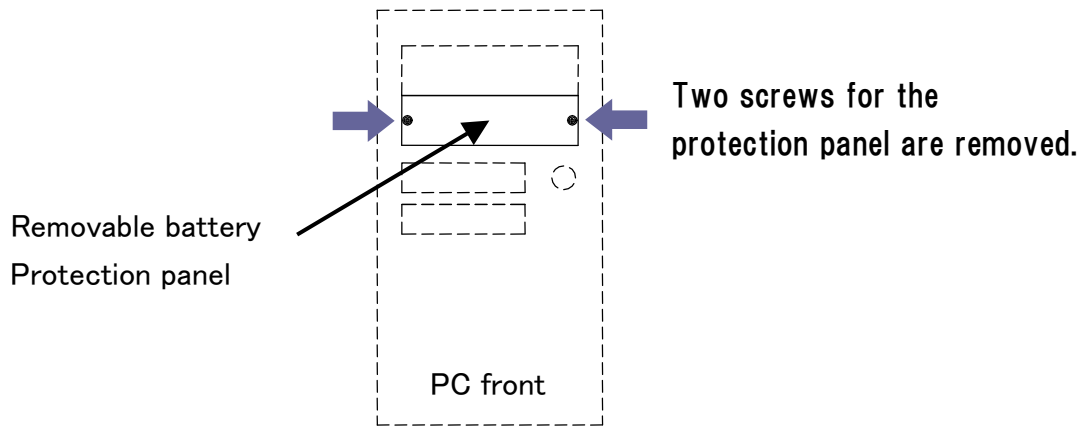
## The method 2 to replace [RBS01A-P24/2.2L (removable battery pack)]

The battery replacement can be made, regardless of PC working by AC input.

\*Remark: During the battery replacement, the power supply cannot back up.

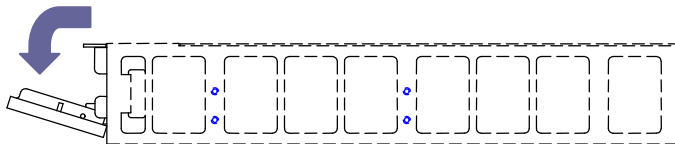
The model number of the replacement is “RBP01A-P24/2.2L (Without frame)”.

1. Screws for the protection panel are removed.

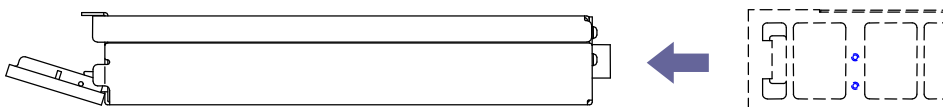


2. The old battery pack is pulled out.

- ① Protection panel is pushed down at the front.



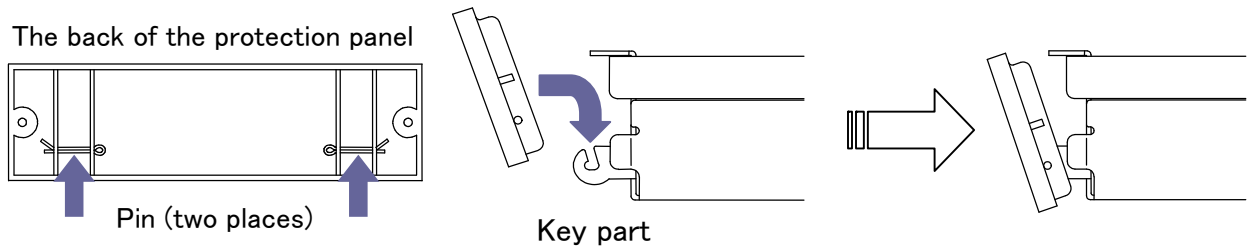
- ② The battery is pulled out.



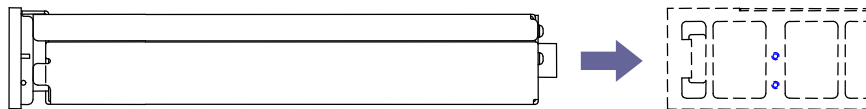
### 3. A new battery pack is installed.

A protection panel is removed from the old battery pack which was pulled out, and then a protection panel is installed for the new battery pack.

- ① Two pins of protection panel are hooked up to the key part of the new battery pack.



- ② The new battery is installed in the 5-inch bay.



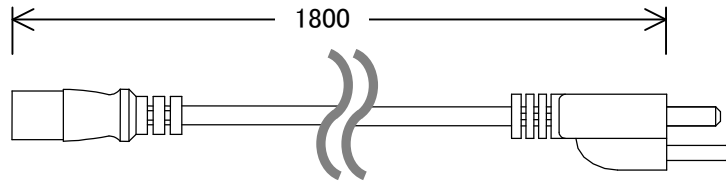
### 4. Two screws for the panel are fastened for fixing.

The replacement of the battery is completed.

### 3. AC cord 「PS2753」

AC cord should be connected so as to get AC power.

The model number of AC cord is “PS2753”.

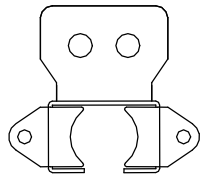


AC cord 「PS2753」

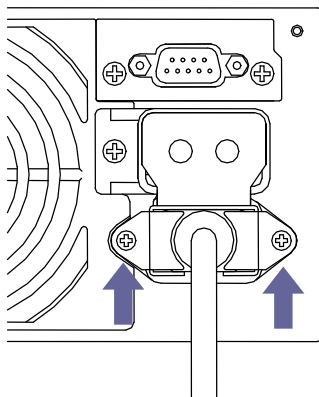
### 4. Protection bracket from pulling AC cord out 「PS2734」

There is a protection (option) for AC cord not to come out and for the mis-operation of the power switch so that it may prevent from unnecessary problem. When you need to operate the switch of eNSP, use a thin stick (such as toothpick) through the hole of the front and make the switch ON/OFF.

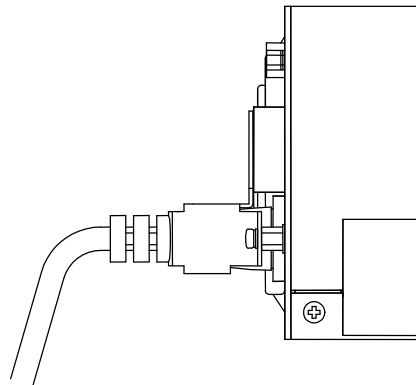
\*Please use Nipron’s AC cord “PS2753” so as to plug in.



Prevention metal for  
AC cord from coming out



Two screws (M3x5)



## 5. Nonstop unit 「BU-300P-24P」

BU-300P-24P is necessary for back up function of eNSP-300P-S20-00S.

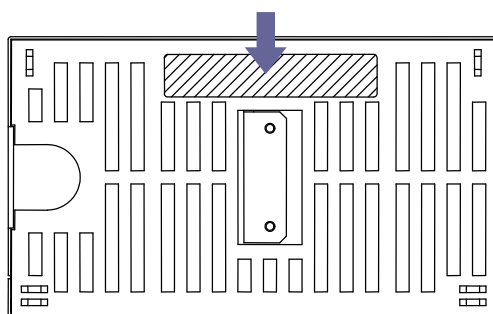
\*A battery pack is required for back up operation.

### Mounting instruction

Remove a protection seal on a connection of nonstop unit of “eNSP-300P-S20-00S, and them attach a nonstop unit.

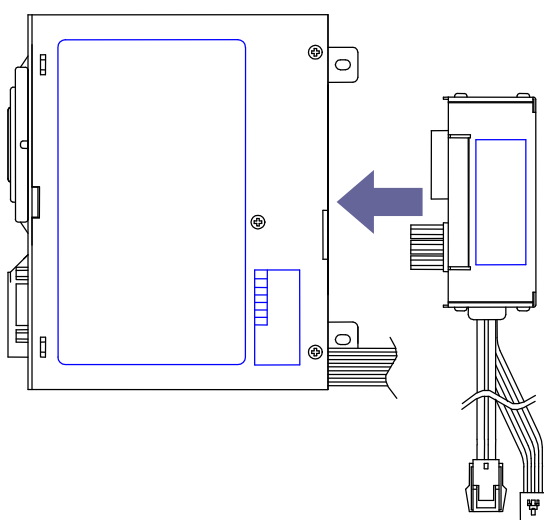
- ① A protection seal is torn off.

A protection seal

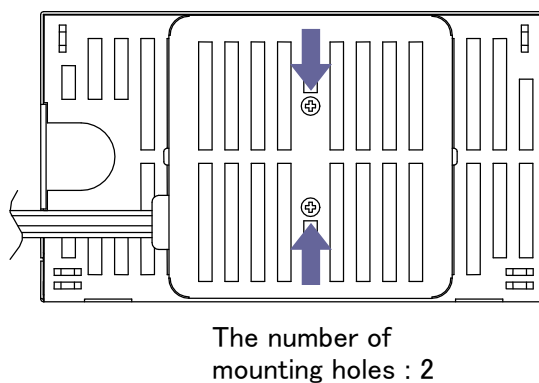


- ② Nonstop unit is mounted with being careful for the connection by using two screws packed together.

It is inserted straight.



It is fixed with 2 screws.



Attention: Be sure to use the screws of packed together or M3x40 .



Attention: Do tightening of the screws firmly.

( Recommended torque: 0.5~0.6N·m )

## 6. Signal unit 「SU-RS」

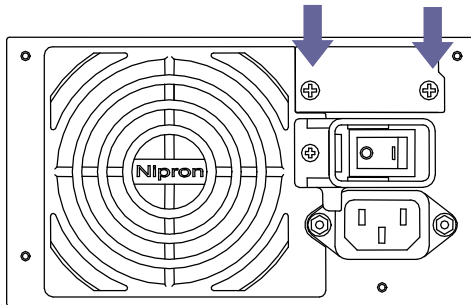
”SU-RS” is necessary for communication with PC motherboard and adding auto-shutdown function.

\*In order to make auto shutdown, a nonstop unit (page19), a battery pack (page13), a RS232C cable (page13), and a power supply watch program are required.

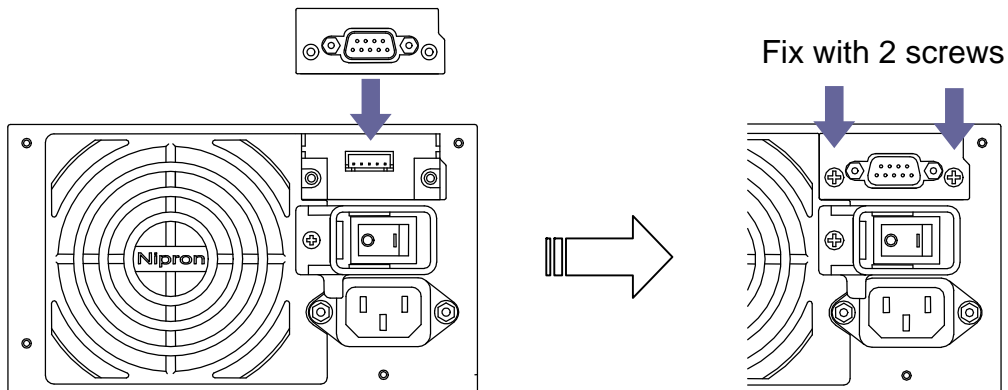
Instruction manual for installing

A protection cover is removed, and then a signal unit is installed in eNSP by using two screws.

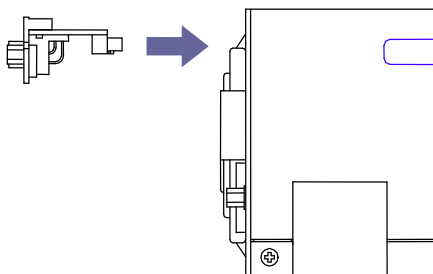
- ① Screws are removed (two places) and a protection panel is removed.



- ② A signal unit is installed by two same screws.



\* Insert it straight



**⚠ Attention:** Don't tighten the screws of the signal unit too much. When it is strongly tightened, a screw hole is likely to be damaged.

( Recommended torque: 0.3~0.4N·m)

## 8. Troubleshooting

Even if you examined in accordance with the following table, when the condition is unsatisfactory and there are something vague, consult a purchased store or the reference of the final page.

At such times	Cause	Countermeasure
Output isn't supplied to a motherboard and peripherals from the power supply.	AC cord isn't connected to the power supply or AC power source properly.	Confirm connection.
	The power line between the power supply and PC motherboard or various peripherals is not properly connected.	Confirm connection.
	A power switch is off.	Turn on a power switch.
	The protection circuit of the power supply works	Turn on a power switch again after you turned off a power switch and leave it for more than 10 seconds.
	It is under over load.	Load condition should be within the specifications.
	The abnormalities of AC power	Wait for AC power recovering.
It doesn't make the backup operation.	The wire between a power supply and a battery is not properly connected.	Confirm connection.
	The capacity of the battery decreases.	Charge it up or replace it.
Malfunction of communication	Wire for communication is not properly connected.	Confirm connection.
	A watch program for the power supply isn't set up.	Set up "Item 6. the watch program for the power supply" according to "page 11".
	The battery is low.	Charge it up or replace it.

## 9. Specifications

### ■ Common specification

items		specification
Environment	Temperature	0~50°C
	Humidity	10~90%
Storage	Temperature	-25~70°C
	Humidity	10~95%
Cooling		Forced air cooling
Warranty period		It is one year guarantee, and it should be exchanged when it fails due to manufacturer's fault or it will be repaired free of charge.

### ■ Main unit

items		specification
Input	Rated voltage	AC100~240V (AC input range 85~264V)
	Frequency	50/60Hz (Range 47~63Hz)
	Efficiency	68% typ(AC100V) , 71% typ(AC240V)
	Power factor	98% typ(AC100V) , 92% typ(AC240V)
Output	Rated voltage	3.3V / 5V / 12V / -5V / -12V / 5VSB (Stand by)
	Maximum load	203.6W (303.6W peak for 5-second)
Size		150W × 120D × 86H
Weight		1.6kg typ

### ■ Nonstop unit

items		specification
Backup method		NSP method
Input	Rated voltage	DC24V
	Efficiency	67% typ
Specified battery	Type	Lead-Acid battery
	Nominal voltage	24V
	Nominal AH	2.3Ah
	Charging time	About 10-hour (Complete discharge condition to full charge)
Size	Nonstop unit	84W × 35D × 84H
Weight	Nonstop unit	0.4kg typ

### ■ Signal unit

items	specification
Interface	RS232C

\*Do not use for nuclear plant, airborne system, military, space and directly related to harm human body.

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\*Contents in this Instruction manual will be changed without any notice.



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