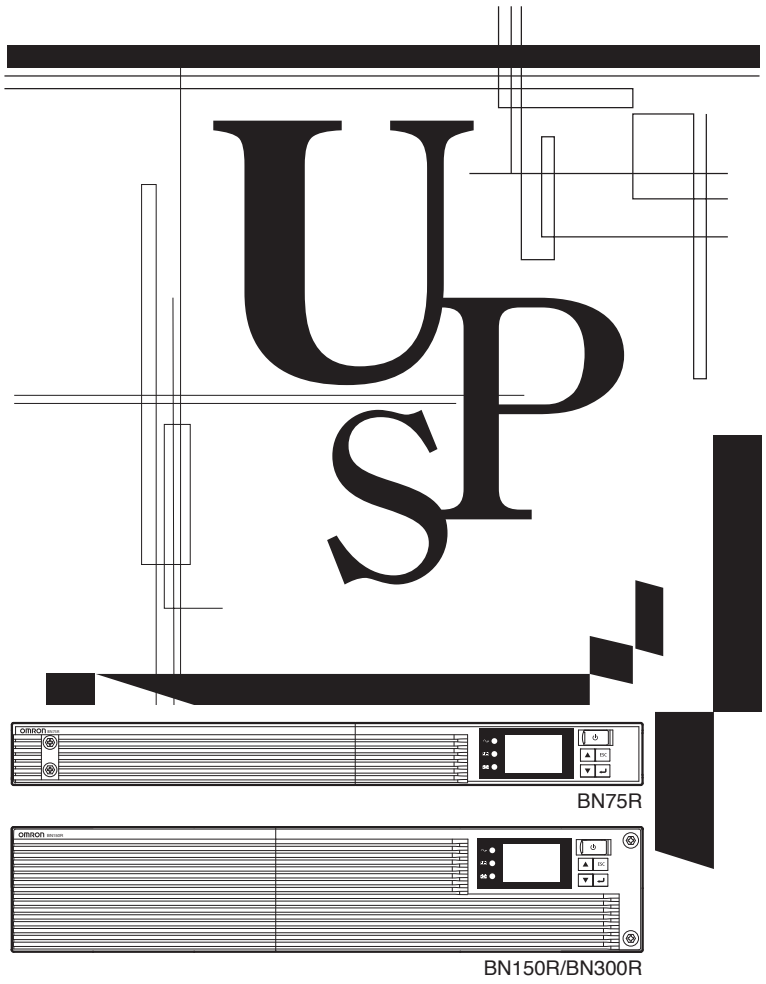
OMRON

Uninterruptible Power Supply

BN75R/BN150R/BN300R

Instruction Manual 使用说明书



BN75R

BN150R/BN300R

- This manual provides important safety-related information. Thoroughly read and understand this manual before installing and using the product.
- Keep this manual in a convenient location so that you can refer to it whenever necessary.
- The contents of this manual are subject to change without notice.

中文使用说明书请参照“10. Notes of Chinese”。

Introduction

Features of this product

Thank you for purchasing Omron's Uninterruptible Power Supply (UPS).

- The UPS protects computers and other devices from power failures, voltage variations, instantaneous voltage drops, and surge voltage such as that caused by lightning (a phenomenon in which extraordinary high voltage occurs instantaneously).
- BN75R/BN150R/BN300R are line interactive UPS with simple output voltage adjustment functions. Under normal service conditions, commercial power input passes through the transformer and is output, and when the input voltage is low, the transformer raises the voltage, and when the input voltage becomes high, the transformer lowers the voltage. In addition, when abnormalities in commercial power are detected, such as in a power failure or when there are large changes in voltage, power supply is shifted to the battery within 10ms, and sine wave output is continued.
- Output capacity is 750VA/680W for BN75R, 1.5kVA/1350W for BN150R, 3kVA/2700W for BN300R.

Notes on the use of the Backup Power Supply

- This product is designed and manufactured for use with FA or OA equipment such as personal computers.
  Do not use it when very high reliability and safety are required as listed below.
  - Medical equipment that may cause death directly
  - Applications that may cause injury (applications that directly affect the operation and control of planes, ships, railroads, elevators, and so on)
  - Applications that are always subjected to vibration such as cars and ships
  - Applications in which a failure of this product may cause significant damage or effect to the society and public (important computer systems, main communication equipment, public transportation systems, and so on)
  - Equipment with the same level of importance
- For equipment that greatly affects the safety of people and maintaining public functions, special considerations related to operation, maintenance, and management must be taken such as duplicating the system and emergency power generation facilities.
- Observe the contents of this manual such as the use conditions and environments.
- When you want to use this product for an important system that requires very high reliability, contact the shop of purchase.
- Do not modify/alter this product.

Disclaimers

We are not liable for any damage or secondary damage resulting from the use of our product, including malfunction and failure of equipment, connected devices, or software.

- Make sure to read the safety precautions before using the unit.
- In the event you transfer or sell this unit to a third party, please include all of the documentation that came with this unit. This is to ensure that the unit is used in line with the conditions described in the included documentation.
  - This manual contains important safety-related information. Please read and understand the contents of the manual before beginning operation.
    If you discover any omissions or errors in the manual, please contact the shop of purchase.

- Windows is the registered trademark of Microsoft Corporation in the United States and/or other countries.
- The names of other companies and products mentioned herein are the trademarks or registered trademarks of their respective owners.

IMPORTANT SAFETY INSTRUCTION

1.SAVE THESE INSTRUCTIONS.

This manual contains important instructions for BN75R/BN150R/BN300R that should be followed when using the UPS and batteries.

2.SYMBOL

This symbol indicates earth ground.

This symbol indicates turning on/off UPS.

3.INTERNAL BATTERY

Internal battery voltage is 24VDC for BN75R. 48VDC for BN150R and 72VDC for BN300R.

4.TEMPERATURE RATING

The maximum ambient temperature of the UPS is 40°C.

5.ENVIRONMENT

The unit is intended for installation in a temperature controlled, indoor area free of conductive contaminants.

Procedure from installation to operation

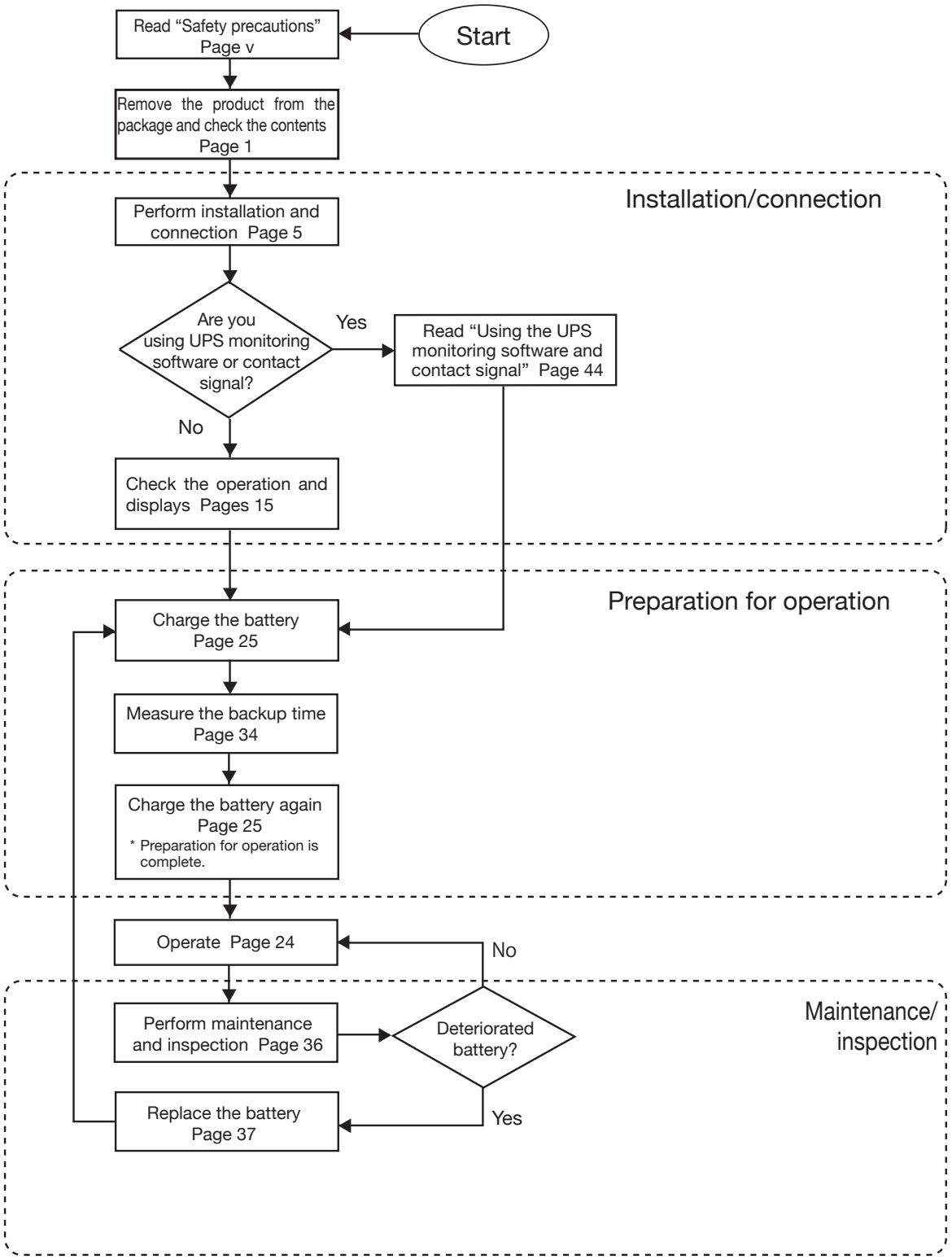


Table of Contents

Safety precautions

Important information for safe operation is described.
Be sure to read it before installation and start of use.

● The safety symbols and their meaning used in this manual are as follows:

Warning	Misuse may cause death or serious injury.
Caution	Misuse may cause injury or property damage.

* Property damage means damage to houses/household effects, livestock, and pets.

: Indicates prohibition. For example, indicates that disassembly is prohibited.

: Indicates obligation. For example, indicates that grounding is necessary.

Note that events categorized as a caution required matter also may cause more serious results under certain conditions.

Warning

Do not use this unit when very high reliability and safety are required as listed below. This unit is designed and manufactured for use with FA or OA equipment such as personal computers.

- Medical equipment or system that may cause death directly.
- Applications that directly affect the safety of people (For example, the operation and control of cars and elevators).
- Applications in which a failure of the unit may cause significant damage to the society and public (For example, essential computer systems and main communication equipment.)
- Applications with the same level of importance.

Caution (for installation and connection)

Carry the unit considering its weight and balance, and place it on a stable and robust base.

- Dropping or toppling the unit may cause injury.
- The approximate weights of the units are 13.5kg (BN75R), 21.5kg (BN150R) and 32kg (BN300R).
- If you drop the unit, stop using it and have it inspected and repaired. For repair, contact the shop of purchase.

Do not hold the side of the front panel when lifting.

- Injury may result if the panel comes off and falls.

Keep plastic package bags out of reach of children.

- Children may suffocate if they place their heads into plastic bags.

Make sure to connect the unit's AC input plug to a commercial power source with rated input voltage (100 VAC) and 50/60 Hz frequency.

- Connecting to a commercial power source with a different rated input voltage or frequency may result in a fire.
- The unit may fail.

When an abnormality (unusual sound or smell) occurs, turn OFF the unit's power switch to stop the output, and stop the supply of commercial power. Disconnect the AC input plug from the wall outlet.
The socket-outlet shall be installed near the equipment and shall be easily accessible.

- When performing maintenance on the connected devices, follow the above instructions to ensure safety.

⚠ Caution (for installation and connection)

Do not connect devices such as dryers, some solenoid valves, etc., which have a half-wave rectifier that allows only half-cycle AC power to flow through.

- Overcurrent may damage the UPS.

Connect the unit to a wall outlet (commercial power) with the appropriate capacity (12A or greater for BN75R, 20A or greater for BN150R and 40A or greater for BN300R.).

- Otherwise, the power cord may be heated.
- When equipment with the maximum output capacity is connected, a maximum current of 12A (BN75R) or 20A (BN150R) or 40A (BN300R).

When changing the input cable for the BN150R/BN300R, perform connection as specified.
Make sure to properly match the AC input terminal with the appropriate wire color.
Do not perform work on the AC input terminal while the unit is connected to a commercial power source.

- Use an input cable that complies with the input current specification of the UPS.
- Failure to do so may result in electric shock or ground fault.

Provide secure grounding.

- After checking the plug shape of the wall outlet, directly connect the AC input plug of the unit to it. A failure or leak that occurs when the unit is not properly grounded may result in electric shock.

Do not disassemble, repair, or modify the unit.

- Doing so may cause an electric shock or a fire.

Do not install the unit in other than specified orientations.

- Dropping or toppling the unit may cause injury.
- If you install the unit in an orientation other than specified, the unit cannot be protected from a battery fluid leakage.
- Use the included vertical stand when positioning the unit vertically. (Only BN150R and BN300R)

Do not use the unit where the maximum temperature exceeds 40°C.

- The battery deteriorates rapidly.
- Doing so may cause a failure or malfunction of the unit.

Do not exceed the ranges specified for environmental conditions during use/storage.
Do not install or store the unit in the places listed below.

- Do not store in places where the humidity is lower than 10% or higher than 90%.
- Do not use the unit in places where the ambient temperature is lower than 0°C or higher than 40°C. (With no condensation)
- Do not use in places where the humidity is lower than 10% or higher than 90%.
- Do not install/store the unit in closed places such as cabinets with no clearance, places where there is flammable or corrosive gas, places with large amounts of dust, places exposed to direct sunlight, places exposed to shock or vibration, salty or wet places, or outdoors.
- Installation or storing the unit in such a place may cause a fire.

Do not connect equipment that exceeds the output capacity of the unit. You can use plug strip to connect additional devices, but do not connect devices that exceed the current capacity of the plug strip.

- The current protection of the unit may operate, which may stop the output.
- The wiring of the plug strip heats up, which may cause a fire.

⚠ Caution (for installation and connection)

Do not pinch or sharply bend the cable.
Do not fold or knot the cable.

- Doing so may cause the cable to be damaged or heated, which may cause an electric shock or a fire.
- If the cable is damaged, stop using the unit and have the cable repaired.
- For repair, contact the shop of purchase.

All of the included accessories are designed to be used exclusively with the unit. Do not use the accessories with other devices.

- Doing so may compromise the safety of devices.

Do not block the air vents (front and rear).

- Doing so will cause the internal temperature to rise, which may cause the unit to fail and the battery to deteriorate.
- Leave at least 5 cm of space between the vent and the wall.

Do not connect a transformer such as a voltage transformer or isolating transformer to the output side.

- Overcurrent may damage the UPS or cause it to malfunction.
- Even when connected to the input side, the UPS may fail or malfunction. Make sure to check the operation before use.

Do not connect devices that cannot be used with commercial power supply.

- When the unit's power switch is turned ON and an error occurs with the connected device, bypass operation is performed and commercial power supply is supplied as is to the connected devices.

When installing the unit on a rack, place it on the lower shelf.

- Injury may result if the unit falls.

Make sure to use the mounting screws included with the brackets.

- Mounting screws other than those included may not be strong enough to support the unit, causing it to fall.
- If you attach the case using long screws other than those included with the product, you may damage the internal parts of the unit.

An additional circuit breaker or fuse with breaking capacity 3kA shall be used between power source and input when installation this unit. (for BN75R and BN150R)

An additional circuit breaker or fuse with breaking capacity 6kA shall be used between power source and input when installation this unit. (for BN300R)

⚠ Caution (for use)

Do not allow the unit to come in contact with water.

If you drop the unit, stop using it.

- Doing so may cause an electric shock or a fire.
- If the unit becomes wet or is dropped, immediately stop using it, disconnect the AC input plug from the wall outlet (commercial power) and have it inspected and repaired.
- For repair, contact the shop of purchase.

When the battery is dead, replace it immediately or stop using the unit.

- Continuing the use of it may cause fire or electric shock due to liquid leaks..

Ambient temperature	Expected life
25°C	5 years
30°C	4 years

* The values in the table are the expected life under standard use conditions and are not guaranteed.

Using a dry cloth, periodically wipe the dust from the AC input plug, input terminal block and power supply output receptacles.

- Accumulated dust may cause a fire.

Do not use the unit in a closed place and do not cover the unit.

- Doing so may cause abnormal heating or a fire.
- Depending on the operating environment, hydrogen gas may be generated from the battery, resulting in a rupture or explosion. Ventilate the area around the unit.

If you notice an abnormal sound or smell, smoke, or leaking fluid, immediately turn OFF the unit's power switch and stop the supply of commercial power.

Disconnect the AC input plug from the wall outlet.

- Using the unit under such conditions may cause a fire.
- If you notice such a condition, stop using the unit and contact the shop of purchase for inspection and repairs.
- Position the unit in such a way that you can immediately disconnect the AC input plug from the wall outlet (commercial power) in the event a problem occurs.

If fluid leaks from the unit, do not touch the fluid.

- Doing so may cause blindness or burns.
- If the fluid contacts your eyes or skin, wash it out with lots of clean water and consult your doctor.

Do not place objects heavier than 25 kg on the unit, and do not drop heavy objects onto the unit.

- Doing so may cause distortion/damage to the case or a failure of the internal circuit, which may cause a fire.

The unit is equipped with a bypath circuit which is able to supply electric power to connected devices even when the inner control circuit is broken down by defects or malfunctions

- Output is continuing even when all indicators of the front panel are off.
- If you want to stop the output, either stop the source of commercial power or disconnect the AC input plug from the wall outlet (commercial power).

Do not sit or stand on top of the product, use it as a step ladder, or lean against it.

- Doing so may cause the unit to fail or to fall over and result in injury.

⚠ Caution (for maintenance)

When maintaining the connected equipment, turn OFF the unit's power switch to stop the output, and stop the supply of commercial power.

● Even if commercial power to the UPS is stopped while it is in operation, the power output of this unit does not stop and power is supplied from the receptacle.

Do not disassemble, repair, or modify the unit.

● Doing so may cause an electric shock or a fire.

If fluid leaks from the unit, do not touch the fluid.

● Doing so may cause blindness or burns.
● If the fluid contacts your eyes or skin, wash it out with lots of clean water and consult your doctor.

Do not throw the unit into fire.

● The lead battery in the unit may explode, or leak dilute sulfuric acid.

Do not insert metal objects into the power supply output receptacle of the UPS.

● Doing so may result in electric shock.

Do not insert metal objects into the battery connectors.
Do not create a short between the connector terminals.

● Doing so may result in electric shock.

⚠ Caution (for battery replacement)

Perform replacement on a stable and flat place.

● Handle the battery carefully so that you do not drop it.
● Not doing so could cause injury or burns due to liquid (acid) leakage.

Use a specified battery for replacement.

● Not doing so may cause a fire.
● Replacement battery pack for
BN75R: BNB75R
BN150R: BNB150R
BN300R: BNB300R

Do not replace the battery in a place where there is flammable gas.

● Spark may occur when connecting the battery, which may cause an explosion or fire.

If fluid (dilute sulfuric acid) leaks from the battery, do not touch the fluid.

● Doing so may cause blindness or burns.
● If it contacts your eyes or skin, wash it out with lots of clean water and consult your doctor.

Do not disassemble or modify the battery.

● Doing so could cause dilute sulfuric acid leak, which could cause blindness and burns.

Do not drop the battery and do not expose it to strong impact.

● Dilute sulfuric acid may leak.

Do not short the battery with metal objects.

● Doing so could cause an electric shock, fire or burn.
● Some electrical energy still remains inside the spent battery.

Do not put the battery into fire and do not break it.

● The battery may explode or leak dilute sulfuric acid.

Do not use a new battery and an old battery at the same time.

● Dilute sulfuric acid may leak.

⚠ Caution (for battery replacement)

Do not dispose of batteries in a fire. The batteries may explode. Dispose of used batteries according to the instructions.

Do not open or mutilate batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.

A battery can present a risk of electrical shock and high short circuit current. The following precautions should be observed when working on batteries:

a. Remove watches, rings, or other metal objects.
b. Use tools with insulated handles.
c. Wear rubber gloves and boots.
d. Do not lay tools or metal parts on top of batteries.
e. Disconnect charging source prior to connecting or disconnecting battery terminals.
f. Determine if battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electrical shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance (applicable to equipment and remote battery supplies not having a grounded supply circuit).

⚠ Attention

Protéger les batteries du feu. Risque d'explosion des batteries. Utilisez les batteries conformément aux instructions.

Ne pas ouvrir ni détériorer les batteries. Les fuites d'électrolyte sont dangereuses pour la peau et les yeux.

Les batteries peuvent présenter un risque de choc électrique avec un fort courant de court circuit. Les précautions suivantes doivent être suivie lors de l'intervention sur les batteries :

a: retirer les montres, bagues et autre objets en métal
b: Utilisez des outils a manche isolé
c: Utilisez des gants et des chaussures isolant
d: Ne pas laisser des outils ou des objets métalliques proches des batteries
e: Déconnecter le chargeur avant de connecter ou de déconnecter les batteries
f: Determiner si la pile est mise a la terre. Si elle est mise a la terre, effectuer la deconnection. Le contact avec une pile mise a la terre peut creer un choc electrique. Ceci sera reduit si cette mie a la terre est supprimee pendant installation et maintenance.

Notes

When moving the unit from a cold place to a warm place, leave it for several hours before using it.

- If the unit is promptly turned ON after being moved to a warmer place, condensation may form inside the unit and cause it to fail.

Charge the battery soon after purchasing the unit.

- If you do not use the unit for a long time after the purchase, the battery may deteriorate and the battery may become unusable.
- The battery can be charged once the AC input plug is connected to commercial power.

Recharge the battery for at least 4 hours every 6 months when the storage temperature is 25°C or less, or every 2 months when the storage temperature is 40°C or less.

- The battery self-discharges even when it not being used, and it goes into over-discharge state if it is left for a long period of time. The backup time may become shorter or the battery may become unusable.
- We recommend keeping the temperature 25°C or less when storing the unit for long periods of time.
- Turn OFF the unit's power switch when storing it.

Do not short the output lines of the unit to each other, and do not short the output lines to the ground.

- The unit may fail.

Do not connect the AC input plug of the unit to its Power Supply Output Receptacle during the Battery Mode.

- The unit may fail.

Do not connect a page printer (such as a laser printer) to the unit.

- The unit repeatedly and frequently switches between Commercial Power Mode and Battery Mode, which may shorten the life of the battery.
- The page printer has a large peak current, so an excess of the connection capacity or a power failure due to instantaneous voltage drop may be detected.

Do not install or store the unit in a place exposed to direct sunlight.

- The rise of temperature may cause the built-in battery to deteriorate rapidly and become unusable.

Before performing a withstand voltage test or insulation resistance test, make sure to remove the input surge protection GND screw from the side of the unit.

When in use, make sure the input surge protection GND screw is securely fastened.

- Performing the withstand voltage test with the ground wire connected may damage the surge absorption element built into the power supply input circuit.
- The input surge protection GND screw is the gray screw on the right side (for the BN75R) or left side (for the BN150R and BN300R).

Before stopping the commercial power to the unit, turn OFF the power switch of the unit.

- The unit enters Battery Mode when commercial power is stopped. If you frequently use the unit in Battery Mode, the battery life may be significantly shortened.

If this unit is used for an inductive device such as a coil or motor, check the operation beforehand.

- With some types of devices, the effect of inrush current may cause this unit to stop operating properly.

Notes

Check system operation beforehand if the unit is used in combination with a device whose power supply voltage and frequency fluctuate widely, such as a generator.

- If the generator's output voltage/frequency falls out of the input voltage/frequency range, the unit will enter Battery Mode.

In the event you transfer or sell this unit to a third party, please include all of the documentation that came with the unit. This is to ensure that the unit is used in line with the conditions described in the included documentation.

- This manual contains important safety-related information. Please read and understand the contents of the manual before beginning operation.

This unit uses lead acid batteries,

- Which are a valuable recyclable resource. Please recycle.

Take measures for handling unforeseen accidents, such as data backup and system redundancy.

- The output may stop when there is failure in the UPS.

Explanation

Usual operation

- You may either leave the power switch of the unit ON (operation status) or turn it OFF each time when stopping the connected system. Choose whichever operation method is more convenient. We recommend turning OFF the power switch when you do not use connected devices for a long time.
- The battery can be charged once the AC input plug is connected to a commercial power source.

Quitting Battery Mode

- If a power failure lasts for an extended period of time, the battery discharges completely and power output from the unit stops. Shut down your computer after performing appropriate procedures (for example, saving data) while the unit is still supplying power.

Rebooting

- If the battery discharges completely during a power failure, the output stops. After recovery from the power failure, the unit automatically restarts and output begins. If you do not want to restart the connected devices, disable the "Settings" - "Boot Settings" - "Auto reboot" setting in the menu on the unit's LCD, or turn OFF the power switch of the connected devices.

Scheduled operation using the UPS monitoring software

- When performing scheduled operation in which the UPS is stopped and a device such as a breaker is used to stop the UPS at the same time that commercial power stops, specify a period of no more than 3 months for the start of the next operation.
  If you specify a period longer than 3 months, the internal timer is reset and the scheduled operation does not start. Note that this period reduces to approximately half when the battery is dead. If a period of 3 months is exceeded, you start operation by supplying commercial power and pressing the start switch. However, if the battery is dead, you may not be able to start operation.
  In this case, replace the battery according to the instructions in "6-2 Replacing the battery" on page 37.

1 Preparation

1-1 Unpacking the product

⚠ Caution

The approximate masses of the units are 13.5kg (BN75R), 21.5kg (BN150R) and 32kg (BN300R).
Unpack/transport this product considering this weight.

● Dropping may cause injury.

Open the package box and take out the UPS and accessories.

1-2 Checking the contents

Check whether all the package contents are included and there is no damage found on their appearance.
If you should notice defects or anything wrong, contact the shop of purchase.

(1) Accessories related to the main unit

	BN75R	BN150R	BN300R
Instruction manual (Japanese/English)	1 each	1 each	1 each
Warranty card (Japanese/Chinese)	1 each	1 each	1 each
User registration card/sheet	1 each	1 each	1 each
Remote ON/OFF connector	1	1	1
Vertical stand	-	1 set	1 set
Support angles compatible with 19-inch racks	1 set	1 set	1 set
Battery replacement date label	1	1	1
Rubber feet (φ 22mm, Height 14.5mm)	4 per set	4 per set	4 per set
3P-2P conversion plug	1	1	-
20A Input AC plug	-	1	-
Serial number label	4	4	4
Ear bracket	2 per set	2 per set	2 per set
Input terminal block cover	-	-	1 set

(2) UPS monitoring software related items

	BN75R	BN150R	BN300R
Quick Install Guide	1	1	1
CD-ROM	1	1	1
Connection cable (RS232C, USB)	1 each	1 each	1 each

<Accessories related to main unit>


Instruction manual (Japanese/English edition)


Connector for remote ON/OFF

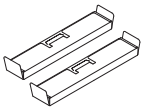

Rubber feet

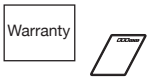

Battery replacement date label


3P-2P conversion plug

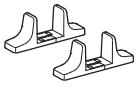

Input terminal block cover


Ear Bracket


EIA/JIS 19-inch rack mount support angles



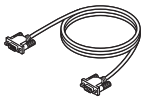
User registration card/sheet

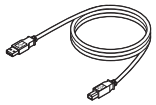

Upright stand

<UPS monitoring software>


CD-ROM


Quick installation guide


Connection cable (RS-232C) (Approx. 2.2 m)


Connection cable (USB) (Approx. 2.2 m)

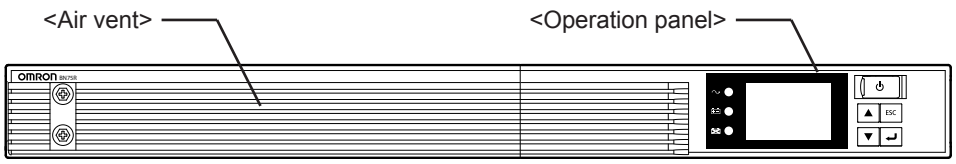
*1 Do not use 3P-2P conversion plug when the unit is used in compliance with UL standard.

1-3 Name of each part

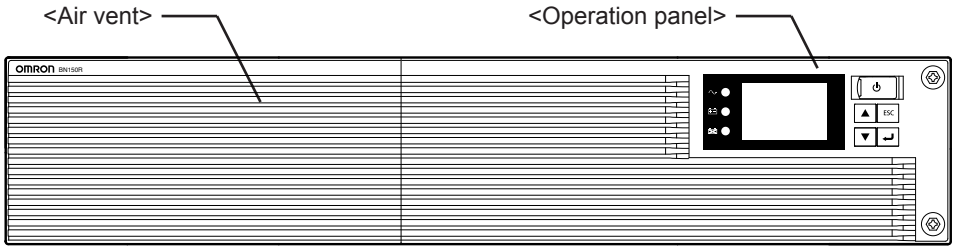
This section describes the name of each part of the UPS.
For information on the function of each part, refer to "2. Installation and connection" on page 5 and "3. Operation" on page 24 that provides the details.

Front view

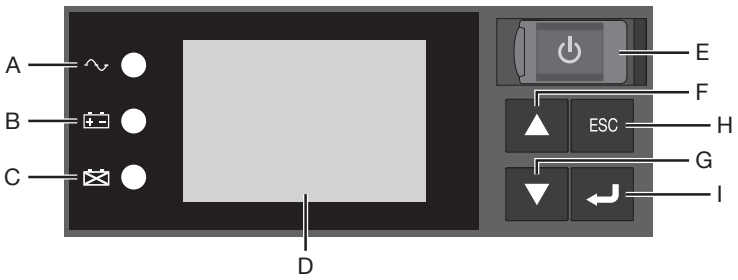
<BN75R>



<BN150R/BN300R>



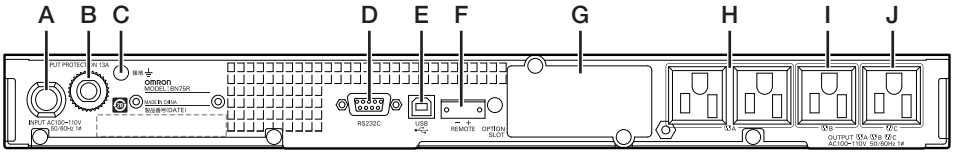
< Enlarged view of the operation panel>



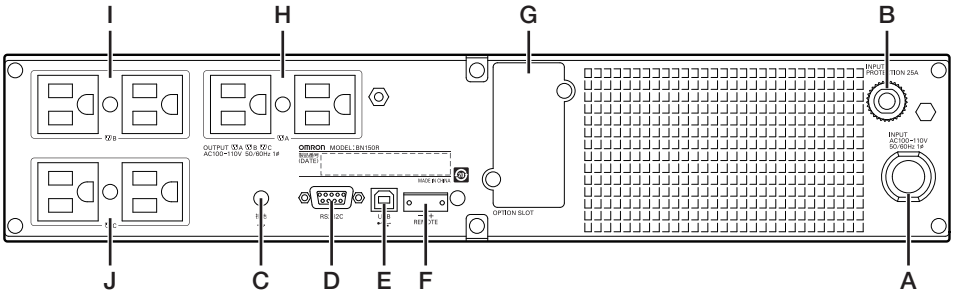
A. “Power supply output” LED
B. “Battery mode” LED
C. “Battery replacement” LED
D. Liquid Cell Display
E. “Power” switch
F. “Up” switch
G. “Down” switch
H. “ESC” switch
I. “Enter” switch

Rear view

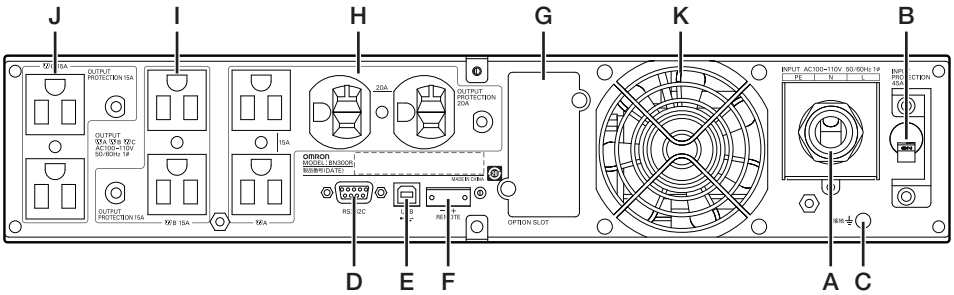
<BN75R>



<BN150R>



<BN300R>



A. AC Input cable
B. AC Input overcurrent protection switch
C. Grounding terminal (M4 screw)
D. RS-232C port
E. USB port
F. Remote ON/OFF port
G. Option slot
H. Power supply output receptacle A
I. Power supply output receptacle B
J. Power supply output receptacle C
K. Cooling fan

1-4 Explanation of symbols used on unit

Symbol	Description
	Start the UPS.
	Stop the UPS.
	UPS output power enabled, supplied by operating on line mode, battery mode.
	UPS output power enabled, supplied by operating on battery mode.
	Batteries at end of useful life, necessary to replace the batteries.

2 Installation and connection

2-1 Precautions and notes on installation and connection

⚠ Caution (for installation and connection)

Carry the unit considering its weight and balance, and place it on a stable and robust base.

- Dropping or toppling the unit may cause injury.
- The approximate weights of the units are units are 13.5kg (BN75R), 21.5kg (BN150R) and 32kg (BN300R).
- If you drop the unit, stop using it and have it inspected and repaired. For repair, contact the shop of purchase.

Do not hold the side of the front panel when lifting.

- Injury may result if the panel comes off and falls.

Keep plastic package bags out of reach of children.

- Children may suffocate if they place their heads into plastic bags.

Make sure to connect the unit's AC input plug to a commercial power source with rated input voltage (100 VAC) and 50/60Hz frequency.

- Connecting to a commercial power source with a different rated input voltage or frequency may result in a fire.
- The unit may fail.

When an abnormality (unusual sound or smell) occurs, turn OFF the unit's power switch to stop the output, and stop the supply of commercial power. Disconnect the AC input plug from the wall outlet.
The socket-outlet shall be installed near the equipment and shall be easily accessible.

- When performing maintenance on the connected devices, follow the above instructions to ensure safety.

Do not connect devices such as dryers, some solenoid valves, etc. , which have a half-wave rectifier that allows only half-cycle AC power to flow through.

- Overcurrent may damage the UPS.

Connect the unit to a wall outlet (commercial power) with the appropriate capacity (12A or greater for BN75R, 20A or greater for BN150R and 40A or greater for BN300R.).

- Otherwise, the power cord may be heated.
- When equipment with the maximum output capacity is connected, a maximum current of 12A (BN75R) or 20A (BN150R) or 40A (BN300R).

When changing the input cable for the BN150R/BN300R, perform connection as specified.
Make sure to properly match the AC input terminal with the appropriate wire color.
Do not perform work on the AC input terminal while the unit is connected to a commercial power source.

- Use an input cable that complies with the input current specification of the UPS.
- Failure to do so may result in electric shock or ground fault.

Provide secure grounding.

- After checking the plug shape of the wall outlet, directly connect the AC input plug of the unit to it. A failure or leak that occurs when the unit is not properly grounded may result in electric shock.

⚠ Caution (for installation and connection)

Do not disassemble, repair, or modify the unit.
- Doing so may cause an electric shock or a fire.

Do not install the unit in other than specified orientations.
- Dropping or toppling the unit may cause injury.
- If you install the unit in an orientation other than specified, the unit cannot be protected from a battery fluid leakage.
- Use the included vertical stand when positioning the unit vertically. (Only BN150R and BN300R)

Do not use the unit where the maximum temperature exceeds 40°C.
- The battery becomes weak rapidly, which may cause a fire.
- Doing so may cause a failure or malfunction of the unit.

Do not exceed the ranges specified for environmental conditions during use/storage.

Do not install or store the unit in the places listed below.
- Do not store in places where the humidity is lower than 10% or higher than 90%.
- Do not use the unit in places where the ambient temperature is lower than 0°C or higher than 40°C. (With no condensation)
- Do not use in places where the humidity is lower than 10% or higher than 90%.
- Do not install/store the unit in closed places such as cabinets with no clearance, places where there is flammable or corrosive gas, places with large amounts of dust, places exposed to direct sunlight, places exposed to shock or vibration, salty or wet places, or outdoors.
- Installation or storing the unit in such a place may cause a fire.

Do not connect equipment that exceeds the output capacity of the unit.
You can use a plug strip to connect additional devices, but do not connect devices that exceed the current capacity of the plug strip.
- The current protection of the unit may operate, which may stop the output.
- The wiring of the plug strip heats up, which may cause a fire.

Do not pinch or sharply bend the cable.
Do not fold or knot the cable.
Doing so may cause the cable to be damaged or heated, which may cause an electric shock or a fire.
- If the cable is damaged, stop using the unit and have the cable repaired.
  For repair, contact the shop of purchase.

The accessories are designed exclusively for use with this unit.
Do not use any of the included accessories with other devices.
- Doing so may compromise the safety of devices.

Do not block the air vents (front and rear).
- Doing so will cause the internal temperature to rise, which may cause the unit to fail and the battery to deteriorate.
- Leave at least 5 cm of space between the vent and the wall.

Do not connect a transformer such as a voltage transformer or isolating transformer to the output side.
- Overcurrent may damage the UPS or cause it to malfunction.
- Even when connected to the input side, the UPS may fail or malfunction. Make sure to check the operation before use.

Do not connect devices that cannot be used with commercial power supply.
- When the unit's power switch is turned ON and an error occurs with the connected device, bypass operation is performed and commercial power supply is supplied as is to the connected devices.

When installing the unit on a rack, place it on the lower shelf.
- Injury may result if the unit falls.

⚠ Caution (for installation and connection)

Make sure to use the mounting screws included with the brackets.

- Mounting screws other than those included may not be strong enough to support the unit, causing it to fall.
- If you attach the case using long screws other than those included with the product, you may damage the internal parts of the unit.

Notes

When moving the unit from a cold place to a warm place, leave it for several hours before using it.

- If the unit is promptly turned ON after being moved to a warmer place, condensation may form inside the unit and cause it to fail.

Charge the battery soon after purchasing the unit.

- The battery self-discharges even when it not being used, and it goes into over-discharge state if it is left for a long period of time.
- The battery can be charged once the AC input plug is connected to a commercial power source.

When storing the unit, charge the battery for at least 4 hours and turn OFF the power switch.

- Even if the unit is not used, the battery gradually discharges, and if it is left for a long time, it goes into an over discharge state.
  The backup time may become shorter or the battery may become unusable.
- Connect the unit to a commercial power source for at least 12 hours every 6 months when the storage temperature is 25°C or less, or every 2 months when the storage temperature is 40°C or less.
- Turn off the power switch of the unit during storage.

Do not short the output lines of the unit to each other, and do not short the output lines to the ground.

- The unit may fail.

Do not connect the AC input plug of the unit to its Power Supply Output Receptacle during the Battery Mode.

- The unit may fail.

Do not connect a page printer (such as a laser printer) to the unit.

- The unit repeatedly and frequently switches between Commercial Power Mode and Battery Mode, which may shorten the life of the battery.
- The page printer has a large peak current, so an excess of the connection capacity or a power failure due to instantaneous voltage drop may be detected.

Do not install or store the unit in a place exposed to direct sunlight.

- The rise of temperature may cause the built-in battery to deteriorate rapidly and become unusable.

Before performing a withstand voltage test or insulation resistance test, make sure to remove the input surge protection GND screw from the side of the unit.
When in use, make sure the input surge protection GND screw is securely fastened.

- Performing the withstand voltage test with the ground wire connected may damage the surge absorption element built into the power supply input circuit.
- The input surge protection GND screw is the gray screw on the right side (for the BN75R) or left side (for the BN150R and BN300R).

Before stopping the commercial power to the unit, turn OFF the power switch of the unit.

- The unit enters Battery Mode when commercial power is stopped. If you frequently use the unit in Battery Mode, the battery life may be significantly shortened.

Notes

If this unit is used for an inductive device such as a coil or motor, check the operation beforehand.

● With some types of devices, the effect of inrush current may cause this unit to stop operating properly.

Check system operation beforehand if the unit is used in combination with a device whose power supply voltage and frequency fluctuate widely, such as a generator.

● If the generator's output voltage/frequency falls out of the input voltage/frequency range, the unit will enter Battery Mode.

2-2 Installation

The UPS permits the following installing methods. Choose the one best suited for the environment.

2-2-1. Rackmount installation

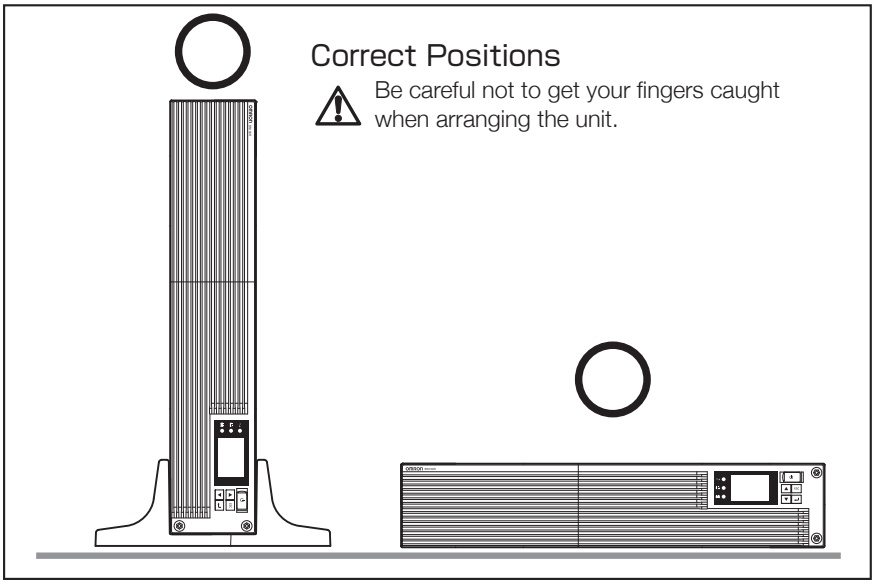
2-2-2. Stationary installation

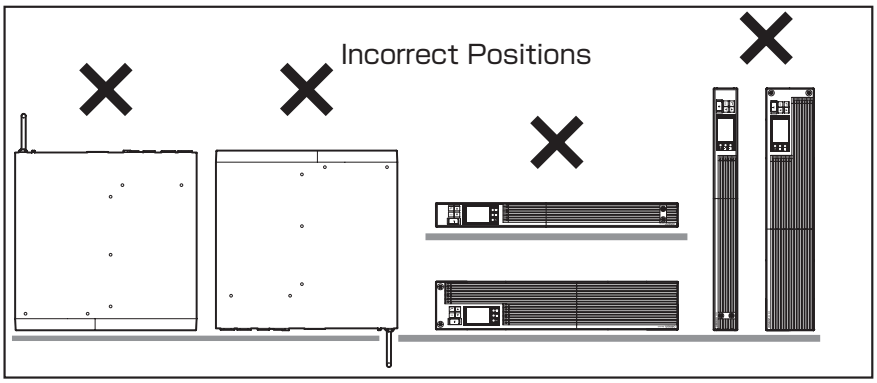
- Horizontal
- Upright intatllation (Only BN150R and BN300R)

Do not use this unit in any position other than the “correct positions” indicated in the illustration below.

Note

Before installing this device, make a record of the serial number of this device. The product serial number is required when contacting the shop of purchase about the device. The serial number (S/N) is inscribed on the bottom left side of the rear panel. The product serial number is inscribed on the bottom left side of the rear panel. The product serial number label is also included.





2-2-1. Rackmount installation (EIA /JIS 19-inch rack/server rack)

⚠ Caution

When performing rack installation, ensure that the UPS is supported and stabilized by using both the support angles and the table clamps that were included.

When connecting an additional battery unit, be sure to place the battery unit in a position lower than the main unit.

- When installing on a rack, make sure that the UPS is supported by the each unit individually.
- When installing on a rack, make sure to use the support angles and table clamps included with the product. Without the support angles, the front clamp alone cannot support the weight of the UPS.
- The mass of each unit: BN75R: Approx. 13.5kg BN150R: Approx. 21.5kg BN300R: Approx. 32kg

In a case where the UPS is to be mounted on a rack, place it on the lower part of the rack.

- Dropping it may result in injury.

Be sure to use the supplied mounting screws.

- Use of long screws other than those supplied for case mounting may damage inside the unit.
- Screws other than those supplied may not be strong enough to support the UPS, causing it to fall.

<BN75R>

● Items included in the 19-inch rack support angle mounting bracket set

Rack rail (extendable) L 1
Rack rail (extendable) R 1
Ears 2

Ear screws (M4) ..... 4 

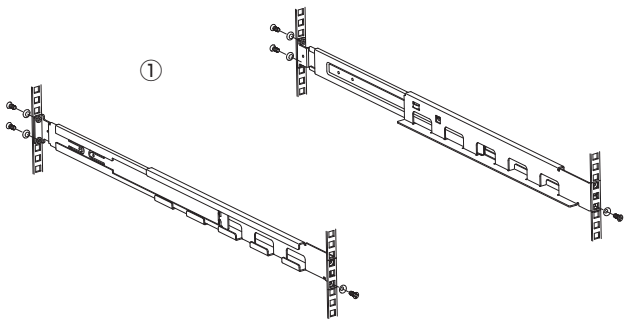
EIA rack fixing screws (M5) ..... 8 

EIA rack washers..... 8 

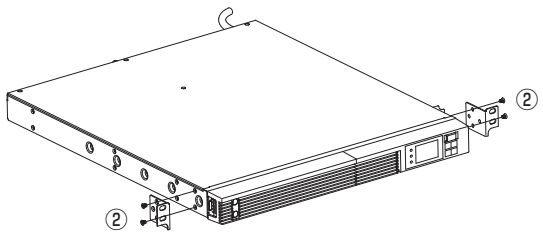
Note: BN75R cannot be mounted on JIS racks.

● Rack mounting procedure

(1) Adjust the length of rack rails to suit the rack. The extension range of the rack rails is 465 to 1000 mm. Use the 6 included EIA rack washers and 6 EIA rack fixing screws (M5) to securely fasten the front (the side displaying “L” or “R”) and the back of the rack rails, so that the rack will be sandwiched between them. ①

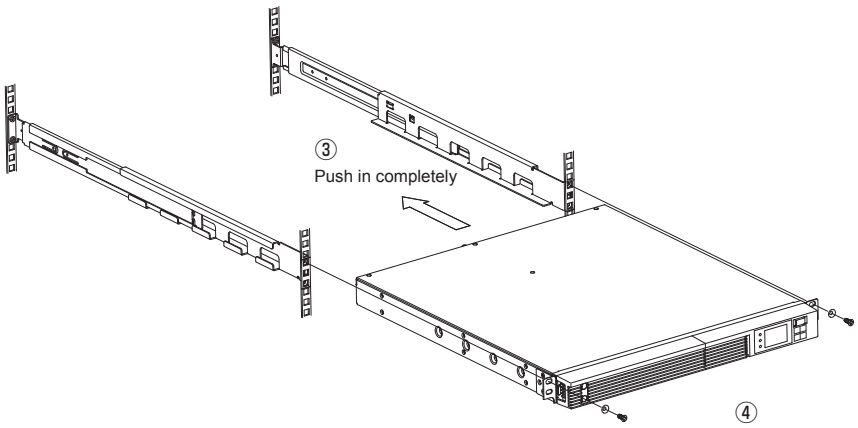


(2) Use the 4 included ear mounting flat-head screws (2 sets of 2 screws) to securely fasten the ears to the left and right sides of the UPS. ②



The support angles cannot be attached to special EIA racks.

(3) Place the UPS on the rack rails and push it completely into the rack ③, and use the 2 included EIA rack washers and EIA rack fixing screws (M5) to securely fasten the ears to the server rack. ④



⚠ **Always use the rack rails.**

<BN150R/BN300R>

● Items included in the 19-inch rack support angle mounting bracket set

Rack rail (front) L 1
Rack rail (front) R 1
Rack rail (rear) 2
Ears 2

Rail length fixing screws (M4) ..... 6 

Ear screws (M4) ..... 8 

EIA/JIS rack fixing screws (M5)..... 8 

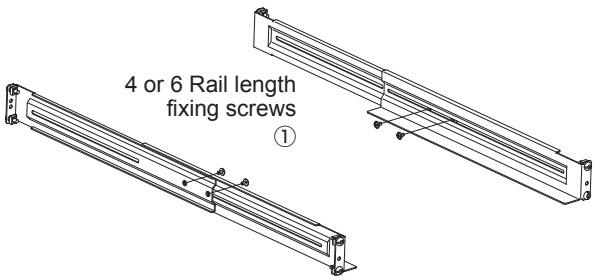
EIA rack fixing nuts (M5) ..... 8 

Ear fixing screws (M6) ..... 2 

Ear fixing nuts (M6) ..... 2 

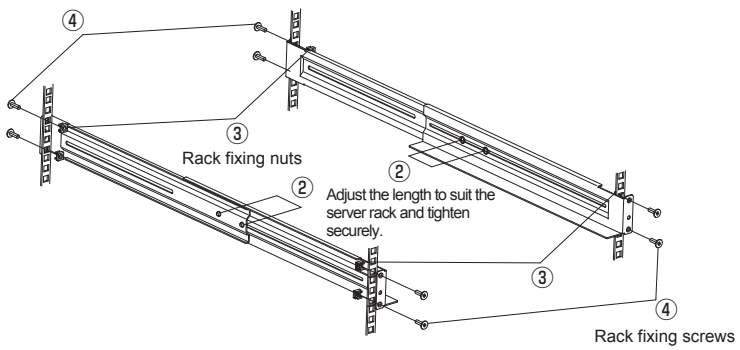
● Rack mounting procedure

(1) Insert the 4 or 6 included rail length fixing screws (M4) and half-tighten them to hold the front and rear rack rails in place. ①
There are two types of front rack rail: left (L) and right (R).
There are two types of rear rack rail.

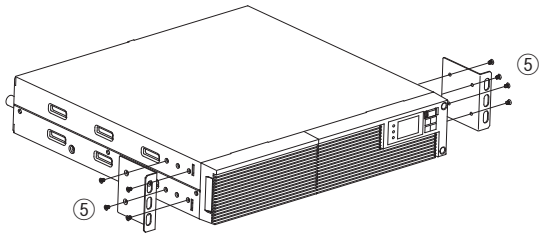


(2) Adjust the length of rack rails to suit the rack, and then securely tighten the screws that were half-tightened in step 1. ② The extension range of the rack rails is 465 to 790 mm.

(3) For EIA standard-compliant installation, attach the 8 included EIA rack fixing nuts (M5) to the rack aligning them with the hole positions on the front (the side displaying “L” or “R”) and the back of the rack rails. ③ Then, use 8 EIA/JIS rack fixing screws (M5) to securely fasten them to the rack. ④ The screw hole positions are the topmost and bottommost ones for both front and rear.
For JIS standards, use a total of 4 screws to fix the rack; 1 EIA/JIS rack fixing flat-head screw (M5) at a front position and a rear position on each of the left and right rack rails. ④ The screw hole position is the one at the second from the top for both front and rear.

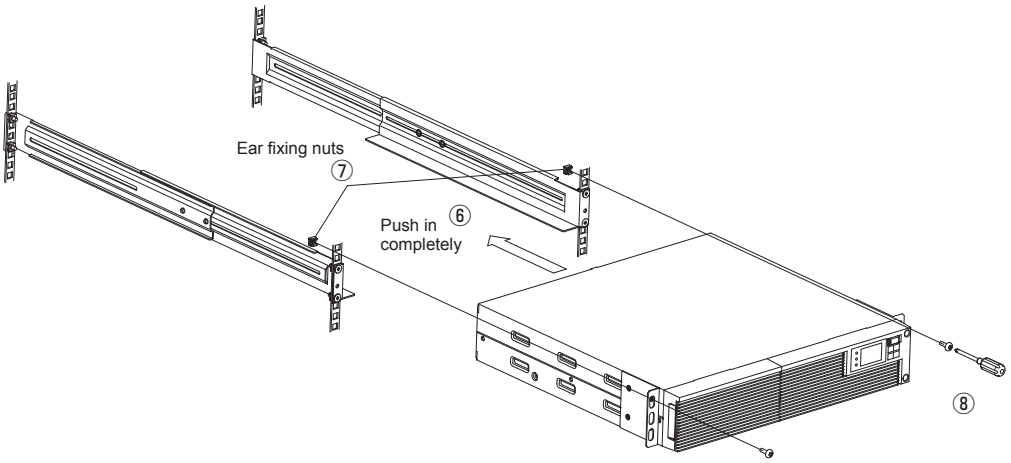


(4) Use the 8 included ear mounting flat-head screws (2 sets of 4 screws) to securely fasten the ears to the left and right sides of the UPS. ④



The support angles cannot be attached to special EIA/JIS racks.

(5) Place the UPS on the rack rails and push it completely into the rack ⑤ , and attach the 2 included ear fixing nuts to the rack aligning them with the hole positions on the ears. ⑥ Then, use ear fixing screws (M6) to securely fasten them to the rack. ⑦



⚠ **Always use the rack rails.**

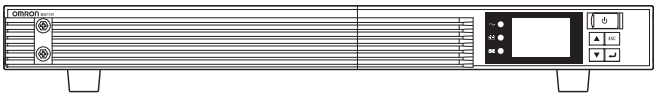
2-2-2. Stationary installation

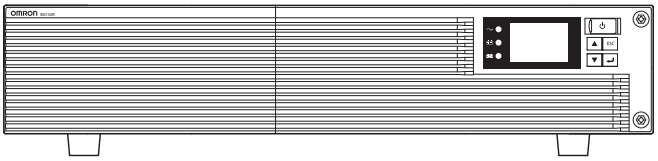
Perform installation only as shown in the diagrams below.

●Horizontal installation

Attach the included rubber feet for horizontal installation to the specified locations on the bottom of the product.

For stationary horizontal installation, make sure that this product does not slide or fall.

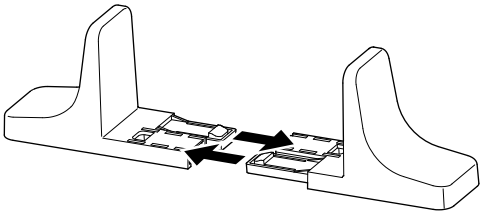




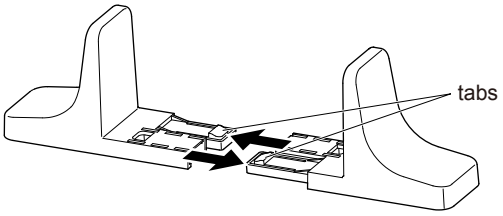
●Upright installation (Only BN150R and BN300R)

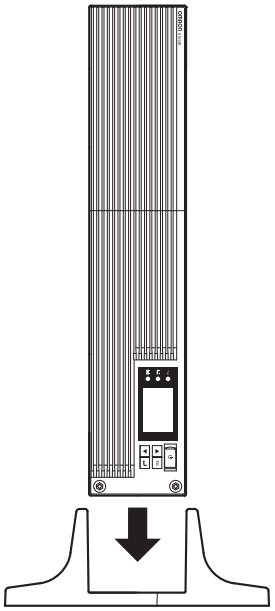
Use the upright stands (2) included with the product. If the upright stands are not used, the UPS may fall over due to vibration or other reason.

Assemble the stand. Align the tabs with the slots and push in until they click.



To disassemble the stand, pull it apart while pressing down on the two tabs.





2-3 Connecting the equipment

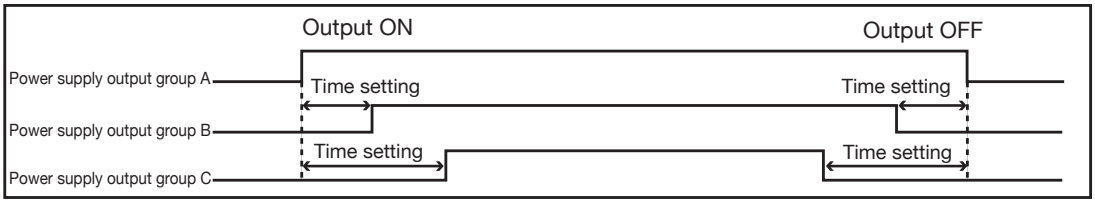
⚠ Caution

Do not connect devices with rated voltage of 100 VAC or higher.
- The rated output voltage of this device is 100 VAC.
- Overcurrent may damage the connected devices.

Connecting a device to the power supply output

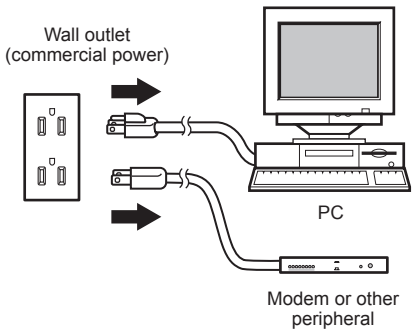
- **Group control of power supply output**

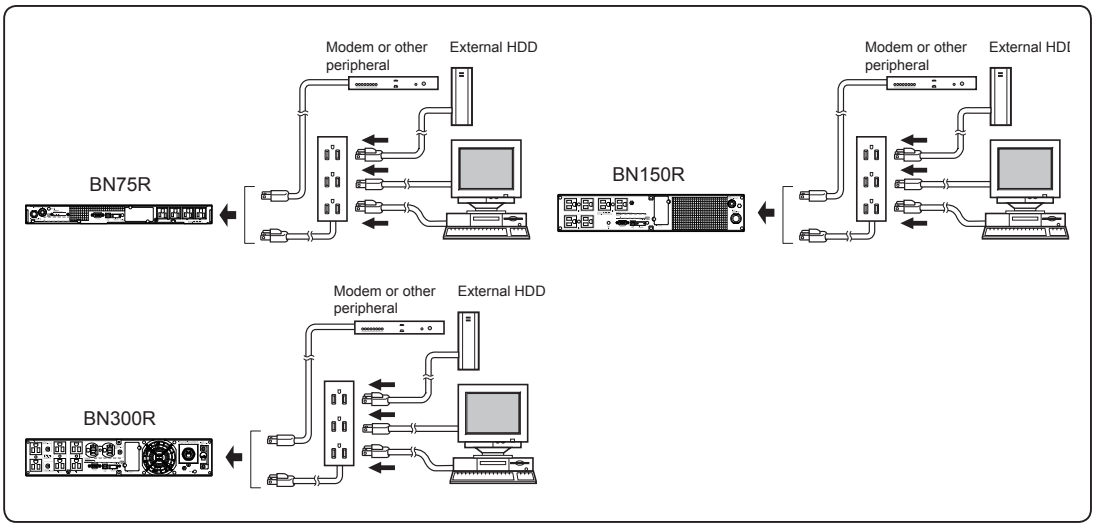
  The output receptacles of the UPS (BN-R) are separated into 3 groups: A, B, and C.
  - The output start times for power supply output group B and C are independent of power supply output group A, so they can be delayed or set to precede the output stop time.
  - The output start/stop time control function is available with the setting on the LCD panel or when using the “PowerAct Pro” UPS monitoring software (included software) or “SNMP/Web card” (sold separately).
  - Output ON/OFF can be controlled by operating the LCD panel or with the included “PowerAct Pro” UPS monitoring software while the UPS is operating.
  - The delay settings and ON/OFF control described here can be performed independently for power supply output group B and power supply output group C.
    This function can be used to set the startup order of servers, peripheral devices, etc.
    The output receptacles can also be forcibly turned ON/OFF remotely.



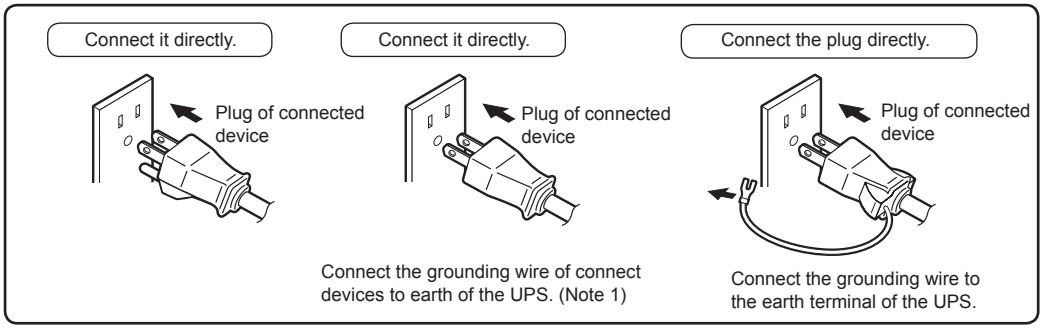
(1) Disconnect the AC Input Plugs of all devices you want to back up such as your PC and modems from a wall outlet (commercial power).

(2) Connect devices you want to back up to the Power Supply Output Receptacles of the UPS.
  - If you need more output receptacles than those of the UPS, purchase a plug strip and use it for extra output receptacles.





- When using a 2-pin input plug with a grounding wire, connect the grounding wire to earth in building. When using a 2-pin input plug with a grounding wire, connect the grounding wire to earth in building.
- When you want to use an AC adaptor, connect it to a Power Supply Output Receptacle of the UPS with space enough for the connection.



Note 1: This connection cannot be performed when this product is used in compliance with UL standards.

(3) When using the included UPS monitoring software, the Windows standard UPS service, or the contact signal, use the connection cable to connect the unit to the PC.

See also **"7. Using the UPS monitoring software and contact signal" Page 44**
*** If you do not use the UPS monitoring software and Contact Signal, this step is not required.**

- **The UPS has been charged prior to shipment. However, the backup time becomes shorter when using it for the first time due to spontaneous discharge.**
  We recommend charging the UPS before using it.
  When the AC input plug is connected to a wall outlet (commercial power), the battery automatically starts charging, taking up to 4 hours to complete.
- **You can perform "2-5 Checking the operation" on page 21 also before charging the battery.**

2-4 Connecting the AC input

When installation and connection are complete, connect the unit's AC input to a commercial power source.

⚠ Caution

Make sure to connect the AC input plug of the unit into a wall outlet (commercial power) with rated input voltage (100V to 120V AC).

- Connecting to a wall outlet (commercial power) of a different rated voltage may result in fire.
- The unit may fail.

- The BN75R AC input plug cannot be changed.
- The AC input plug for the BN150R and BN300R can be changed according to the operating environment.
- The supported AC input plugs and the maximum connection capacities are as follows. Change to an appropriate AC input plug according to the connection capacity of the device.

Model	AC input plug	Voltage sensitivity setting	Maximum connection capacity
BN75R	**15A**	Low	750VA/680W
		Standard/High	**750VA/680W**
BN150R	**15A (attached when shipped)**	Low	1050VA/1050W
		Standard/High	**1125VA/1125W**
	20A	Low	1450VA/1350W
		Standard/High	1500VA/1350W
BN300R	20A	Low	1420VA/1420W
		Standard/High	1520VA/1520W
	30A (attached when shipped)	Low	2220VA/2220W
		Standard/High	**2370VA/2370W**
	Terminal block connection	Low	3000VA/2700W
		Standard/High	3000VA/2700W

* The bold font indicates factory settings.

⚠ Caution

When the maximum output capacity (1500VA/1350W) is connected to the BN150R, replace the AC input plug with a 20A plug. When the maximum output capacity (3000VA/2700W) is connected to the BN300R, change to terminal block connection.

- Overheating or fire may occur if the power consumption exceeds the limits shown in the table above.
- If the maximum output capacity is being used, change the AC input connection method by referring to the table above.
- After changing the AC input plug, change the "Setting" - "In/Out Settings" - "Input Plug" setting in the menu on the LCD.

2-4-1. Connecting the AC input plug

BN75R connection procedure

- Provide a wall outlet (commercial power) suitable for the shape of the 15A plug (NEMA 5-15R).
- It is possible to connect to a 2-pin outlet using the included 3P-2P adapter.

⚠ In this case, provide grounding separately.

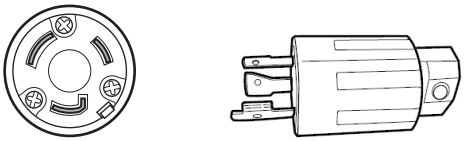
BN150R connection procedure

- When using the 15A plug (connected when shipped)
  - Provide a wall outlet (commercial power) suitable for the shape of the 15A plug (NEMA 5-15R).
- It is possible to connect to a 2-pin outlet using the included 3P-2P adapter.

⚠ In this case, provide grounding separately.

- When using the 20A plug

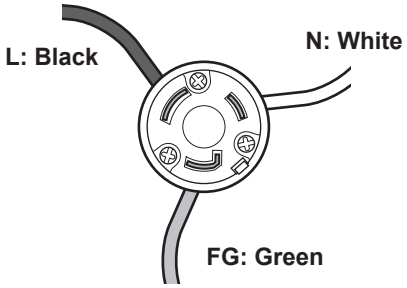
  You can use up to the rated capacity of the BN150R.
  - Provide a wall outlet (commercial power) suitable for the shape of the 20A plug (NEMA 5-20R).
  - Replace the AC input plug with the included NEMA L5-20P plug.



- **Plug replacement procedure**

  (1) Disconnect the 15A plug.
  (2) Connect the included NEMA L5-20P plug as shown in the illustration below.

⚠ Make sure the wire colors match those in the diagram before tightening the screws



BN300R connection procedure

- When using the 30A plug (connected when shipped)
  - Provide a wall outlet (commercial power) compatible with the shape of the 30A plug (NEMA L5-30R).
  - If this plug is used, make sure that the capacity of the connected devices stays below the maximum capacities shown in the table on page 17.
  - After connecting to commercial power, turn ON the INPUT PROTECTION switch (input overcurrent protection switch) on the back of the unit.

2-4-2. Connecting to BN300R input terminal block

⚠ Caution

When connecting the AC input directly from a power switchboard to the BN300R, make sure that the wiring work is performed by a qualified electrical engineer (with Type II certification or higher).

- To use the BN300R with up to 3000VA/2700W, a wiring capacity of 42A or more is required.

⚠ Caution

When changing the input cable for the BN300R, make sure to perform the connection as specified.

Make sure to properly match the AC input terminal with the appropriate wire color.

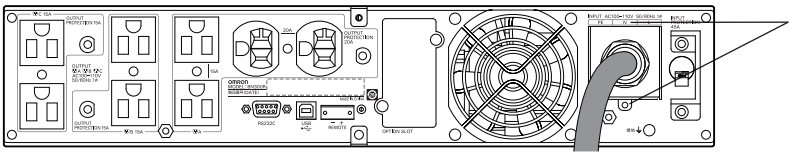
Do not connect the unit's AC input terminal while it is connected to commercial power.

- Failure to do so may result in electric shock or ground fault.

Not re-install power supply cord to the unit after re-configured the unit to permanent AC connection.

Replacing the BN300RW AC input cable

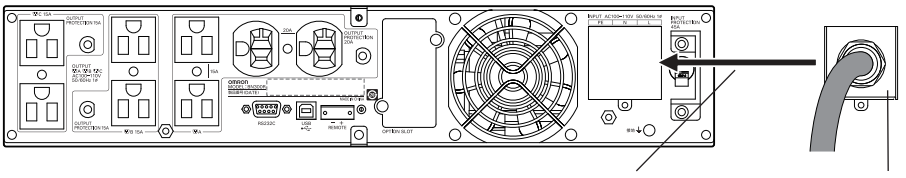
(1) Remove the terminal-cover at AC input. (Two screws)

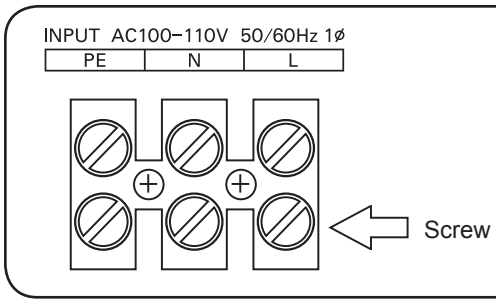


(2) Remove screws at terminals (L, N, G(PE)) connecting the cable to the terminals and remove the old AC input cable.

(3) Run the newly connected cable through the included AC input terminal block cover.

(4) Connect the new AC input cable to AC input terminals by screws.
Be careful to polarities of L, N, G terminals and connect correctly.

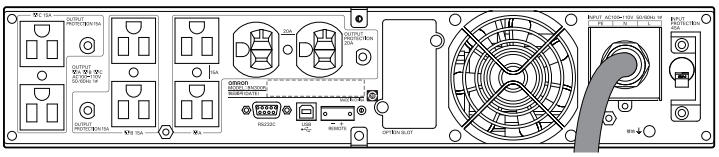




Connectable wire size	5.0 to 8.0mm^2
Amount of stripped wire	5.5mm
Tightening torque	1.355Nm (12 lb-in)
Recommended cable size	8mm^2 (AWG8)

● Securely fasten the screws with a tightening torque of 1.355Nm (12 lb-in) or more.

(5) Fix the AC input terminal block cover to the console by screws.



(6) After connecting to commercial power, turn ON the INPUT PROTECTION switch (input overcurrent protection switch) on the back of the unit.

- **The unit was charged before shipment, but it may have self-discharged during shipment, resulting in a reduced backup time.**
  We recommend charging the unit before use.
- **You can perform "2-5 Checking the operation" on page 21 also before charging the battery.**

2-5 Checking the operation

When you finish connecting the unit, confirm that the backup operation works properly.

Check that the Battery Mode is performed normally according to the following procedure.

(In this operation check, the effects of a power failure are reproduced by disconnecting the AC input plug from the wall outlet (commercial power).)

(1) Press and hold the unit's power switch for 2 seconds or longer to turn ON the power.

The beeper sounds and the current settings are displayed on the LCD.
Self-diagnosis starts automatically.
When the self-diagnosis test finishes normally, the unit's operation switches to commercial power and the status indication below is displayed.
(When the battery voltage is low, the self-diagnostic test is not performed and output begins immediately via commercial power.)

○ON ● OFF ⊗ ON, OFF, or blinking depending on status

Status indicator	Description
	Power switch "ON" Operating normally

(2) Bring all the connected devices into operation.

(Including devices connected to the AC outlet of your PC.)

Operate the connected devices in a way that allows the power supply to be stopped at any time.

The unit was charged before shipment, but it may have self-discharged during shipment, resulting in a reduced backup time. We recommend charging the unit before use.

(3) Under this condition, check the the unit's LCD and beep sound.

Are they in the same status as shown below?

Status indicator	
Beep	None
Power supply output receptacles	Outputs power (connected devices are powered)

If the same as the one shown above: → The operation is normal. Proceed to (4).
If not the same as the one shown above: → The operation is abnormal. One of the cases described in "4. Display and beeps when there is an equipment failure" of "3-3 Interpreting a beep and displays" on page 28 must apply.
Take necessary measures and then proceed to (4).

(4) Disconnect the unit's AC input plug from the wall outlet (commercial power).

The unit enters Battery Mode.

(5) In Battery Mode, check the unit's LED display and beep sound.

Does the status indicator appear as one of those shown below?

Status indicator	Beep	Output	Description
	Intermittent 4-second intervals	ON	Backup is operating due to power failure or AC input error. Output will stop if Battery Mode continues.
	Intermittent 1-second intervals	ON	(Same as above.) Battery level is low, so output will stop soon.
	None	OFF	Battery is dead, so output stopped.

If not the same as one of those shown above: → Operation is abnormal. Check the status of lamps and beep, and then press and hold the power switch for 2 seconds or longer to turn OFF the power.

- If the display is one of those shown in “4. Displays and beeps when there is an equipment failure” in “3-3 Interpreting beeps and displays” on page 28, take the necessary measures and then go back to (1) on page 21.
- If no Battery Mode is performed and the UPS and the devices connected to the UPS stop, this may be attributed to an insufficient battery charge.

  After connecting the AC input plug to a wall outlet (commercial power) and charging the battery, go back to step (4) on page 21.
- If the problem persists after checking the 2 points above, contact the shop of purchase.

See also Beeper ON/OFF can be set with “Setting” - “Local Setting” - “Audible Alarm” in the menu on the LCD.

(6) Reconnect the AC input plug to the commercial power source.

The status indicator returns to its normal state and the beeping sound stops.
(The status is as shown below.)

Status indicator	Description
	Power switch “ON” Operating normally

Checking the operation is now complete.

Installation and connection is now complete.

2-6 Charging the battery

The battery automatically starts charging when the AC input plug is connected to a wall outlet (commercial power).
(This occurs regardless of whether the power switch is ON or OFF.)
The charging takes 4 hours to complete.

- The unit was charged before shipment, but it may have self-discharged during shipment, resulting in a reduced backup time. We recommend charging the unit before use.
- If you do not perform the initial backup time measurement described below in “2-7 Measuring the initial value of backup time”, proceed to “3. Operation. → Page 24”

2-7 Measuring the initial value of backup time

- When you measure the backup time initial value of the unit in your environment, this value can be used as a guide when checking the battery and deciding the UPS monitoring software setting values.

See also "5. Measuring the backup time" → Page 34

2-8 Recharging the battery

The battery is discharged completely when the backup time is measured, so you need to recharge it before using the UPS.

- You can use connected devices while recharging the battery, but the backup time when a power failure occurs is shorter until the battery is fully charged.
  (If a power failure occurs immediately after the start of charging, backup stops immediately.)

See also Charge the battery as described in "2-6 Charging the battery."

Preparation for starting operation is now complete.

3 Operation

3-1 Precautions and notes for operation

Take notice of following items during operation.

⚠ Caution (for use)

Do not allow the unit to come in contact with water. Do not drop the unit.

- Doing so may cause an electric shock or a fire.
- If the unit becomes wet, immediately stop using it, disconnect the AC input cable from the wall outlet (commercial power).
  For repair, contact the shop of purchase.

When the battery is dead, replace it immediately or stop using the unit.

- Continuing the use of it may cause fire or electric shock due to liquid leaks..

Ambient temperature	Expected life
25°C	5 years
30°C	4 years

* The values in the table are the expected life under standard use conditions and are not guaranteed.

Using a dry cloth, periodically wipe the dust from the AC input plug and power supply output receptacles.

- Accumulated dust may cause a fire.

Do not use the unit in a closed place and do not cover the unit.

- Doing so may cause abnormal heating or a fire.
- Depending on the operating environment, hydrogen gas may be generated from the battery, resulting in a rupture or explosion. Ventilate the area around the unit.

If you notice an abnormal sound or smell, smoke, or leaking fluid, immediately turn OFF the unit's power switch and stop the supply of commercial power.

Disconnect the AC input plug from the wall outlet.

- Using the unit under such conditions may cause a fire.
- If you notice such a condition, stop using the unit and contact the shop of purchase for inspection and repairs.
- Position the unit in such a way that you can immediately disconnect the AC input plug from the wall outlet (commercial power) in the event a problem occurs.

If fluid leaks from the unit, do not touch the fluid.

- Doing so may cause blindness or burns.
- If the fluid contacts your eyes or skin, wash it out with lots of clean water and consult your doctor.

Do not place objects heavier than 25kg on the unit, and do not drop heavy objects onto the unit.

- Doing so may cause distortion/damage to the case or a failure of the internal circuit, which may cause a fire.

The unit is equipped with a bypath circuit which is able to supply electric power to connected devices even when the inner control circuit is broken down by defects or malfunctions

- Output is continuing even when all indicators of the front panel are off.
- If you want to stop the output, either stop the source of commercial power, or disconnect the AC input plug from the wall outlet (commercial power).

Do not sit or stand on top of the product, use it as a step ladder, or lean against it.

- Doing so may cause the unit to fail or to fall over and result in injury.

Notes

Before stopping the commercial power to the unit, turn OFF the power switch of the unit.

- The unit enters Battery Mode when commercial power is stopped. If you frequently use the unit in Battery Mode, the battery life may be significantly shortened.

Take measures for handling unforeseen accidents, such as data backup and system redundancy.

- The output may stop when there is failure in the UPS.

Explanation

Usual operation

- You may either leave the power switch of the unit ON (operation status) or turn it OFF each time when stopping the connected system. Choose whichever operation method is more convenient. We recommend turning OFF the power switch when you do not use connected devices for a long time.
- The battery can be charged once the AC input plug of the unit is connected to a wall outlet (commercial power).

Quitting Battery Mode

- If a power failure lasts for an extended period of time, the battery discharges and power output from the unit stops. Shut down your computer after performing appropriate procedures (for example, saving data) while the unit is still supplying power.

Rebooting

- If the battery discharges completely during a power failure, the unit stops. After recovery from the power failure, the unit automatically restarts and supplies power. If you do not want to restart the connected devices, disable the “Settings” - “Boot Settings” - “Auto reboot” setting in the menu on the unit’s LCD, or turn OFF the power switch of the connected devices.

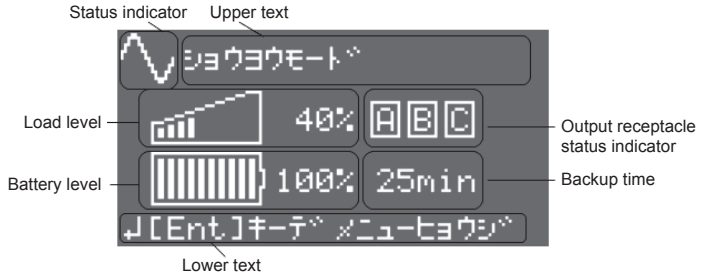
Scheduled operation using the UPS monitoring software

- When performing scheduled operation in which the UPS is stopped and a device such as a breaker is used to stop the UPS at the same time that commercial power stops, specify a period of no more than 3 months for the start of the next operation. If you specify a period longer than 3 months, the internal timer is reset and the scheduled operation does not start.
  Note that this period reduces to less than half when the battery is at the end of its life.
  If a period of 3 months is exceeded, you start operation by supplying commercial power and pressing the Start Switch. However, if the battery is deteriorated, you may not be able to start operation. In this case, replace the battery according to the instructions in “6-2 Replacing the battery” on page 37.

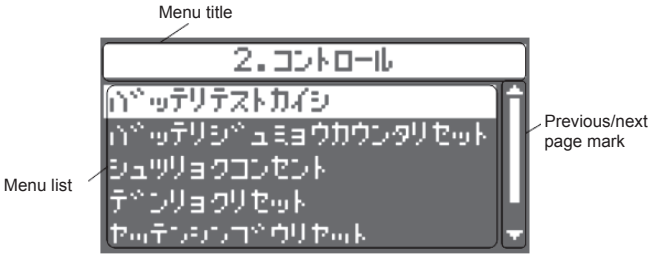
3-2 Start and stop procedures and basic operation

The UPS status indicators and UPS setting change menu are displayed on the control display panel on the front of the unit.

● UPS status indicators (status screen)

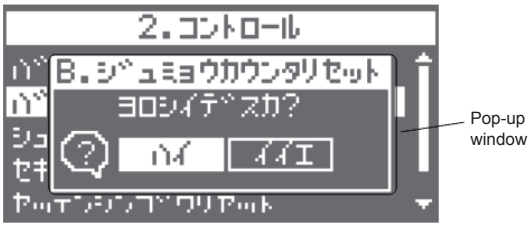


● UPS setting change menu screen



* Selected item is highlighted.

● Pop-up window



* Displayed for additional information or when confirmation is required.

Basic operations on the menu screen

Switch	Description
[▲] [▼]	Move cursor up/down or increase/decrease values
[↵]	Select the menu item or set the value
[ESC]	Return to menu or cancel

● When the unit is connected to a commercial power source with the power switch OFF and commercial power is supplied to it

- The status indicator displays " ⏻ ".
- Power output is stopped.
- The battery automatically starts recharging.
- The standby screen appears on the LCD.

● Start procedure

Operation **Press and hold the power switch of the UPS for 2 seconds or longer.**

- After a few seconds, output begins.
- The " 🔍 " icon appears, and the self-diagnostic test is performed in Battery Mode for about 10 seconds.
- If the battery voltage is low, the self-diagnostic test is not performed. It is automatically executed after the battery is charged.
- When the self-diagnosis test finishes normally, the unit enters the normal operating state.
- When the self-diagnostic test is not performed, the unit enters the normal operating state immediately.

Status indicator	Beep	Output	Charging	Description	Solution
	None	ON	ON	Commercial Power Mode	-

- During operation, the battery is charged automatically.

● Operation after a power failure

- If a power failure or abnormal input power supply occurs, the UPS automatically switches to Battery Mode, continuing power output using power supplied from the battery.
- The status indicator and the beeper's intermittent sounds alert the user.

See also Beeper ON/OFF can be set with "Setting" - "Local Setting" - "Audible Alarm" in the menu on the LCD.

Status indicator	Beep	Output	Charging	Description	Solution
	Intermittent 4-second intervals	ON	OFF Discharging	Backup is operating due to power failure or AC input error If Battery Mode continues, output will stop when the battery is depleted	Shut down the connected devices to stop them.
	Intermittent 1-second intervals	ON	OFF Discharging		
	None	OFF	OFF Discharging	Battery is dead, so output stopped.	Charge the battery.

● Operation during recovery from a power failure

- The unit automatically resumes output via commercial power if it recovers from a power failure/input power supply error while it is providing power supply output. The spent battery starts charging.
- If a power failure or abnormal power input is resolved after the battery is discharged completely and power output is stopped, the UPS restarts automatically and resumes power output. The expended battery begins to charge.

  See also “Setting” - “Boot Settings” - “Auto Reboot” in the menu on the LCD can be used to enable or disable auto restart.

● Stop procedure

Operation **Press and hold the power switch of the UPS for 3 seconds or longer.**

- The power output from the UPS stops.

Status indicator	Beep	Output	Charging	Description
	None	OFF	ON	Power switch OFF

- Even if you turn off the power switch, if AC is supplied from commercial power, the battery is automatically charged.

3-3 Interpreting beeps and displays

No.	Icon	Mode	Beep	Discription	Solution
1		Standby mode	None	There is AC input Power switch is OFF	-
2		Line mode	None	Power switch is ON Operating normally	-
3		AVR mode	None	Operating normally with AVR operation	-
4		ECO mode	None	Operating normally with ECO operation	-
5		Bypass mode	None	Commercial power is being output directly in Bypass Mode.	Check the displayed message
6		Test mode	None	Self-diagnostic test in progress	Returns to Commercial Power Mode when determined to be normal in the test.
7		UPS event	None	Warning (alarm) has occurred.	Check the displayed message

No.	Icon	Mode	Beep	Discription	Solution
8		Battery mode	Intermittent 4-second	Backup is operating due to power failure or AC input error	Shut down the connected devices to stop them.
		Battery low	Intermittent 1-second	Battery level is low, so output will stop soon.	
9		Battery empty	None	Battery is dead, so output stopped	Charge the battery.
		Battery not connected	Intermittent 2-second	Battery is not connected. Or, the battery has been remarkably degraded.	Connect the battery. If this message appears while the battery is being connected, replace the battery.
10		Battery weak	Intermittent 2-second intervals	The self-diagnostic test determined that the battery was deteriorated, or the battery life counter went off-scale	Replace the battery You can replace the weak battery with a separately purchased replacement battery as needed
		End of battery life			
11		Over load	Intermittent 0.5-second intervals	There are too many connected devices and the rated capacity is exceeded	Reduce the number of connected devices until the display appears as in status No.2
12		UPS error	Continuous	There is the internal error	Check the displayed message

● Load/battery level meter

The load level meter displays the power consumption of the connected devices as a percentage. The maximum connection capacity is displayed as 100%. (The maximum connection capacity varies depending on the AC input plug setting.)

See also “2-4 Connecting the AC input” → Page 17

[Example]

- BN75R: Displays 750VA/680W as 100%
- BN150R: Displays 1500VA/1350W as 100%
  (when the AC input plug setting is "20A" and the voltage sensitivity setting is "Standard")
- BN300R: Displays 3000VA/2700W as 100%
  (when the AC input plug setting is "Hard wire")

The battery level meter displays the remaining battery level as a percentage.

4 UPS functions

4-1 Suspending a beep

When the beep is sounding, you can suspend it by pressing and holding the ESC switch for 0.5 seconds or longer.

4-2 Self-diagnosis test

This test performs a failure diagnosis on the unit and performs a test to check for battery deterioration.

Use the procedure below to check whether a circuit failure has occurred inside the unit and whether battery replacement is required.

This test is performed if the “Power” switch is ON or performed automatically (You do not have to perform any special operations). The test is performed once every 4 weeks after the AC input is connected to commercial power and power distribution begins. The test is not performed if the “Power” switch is OFF.

If the battery is not fully charged, the self-diagnostic test is not executed immediately.
After charging is complete, it is automatically executed.

(1) When the self-diagnostic test is executed, the Battery Mode starts automatically (No beep sounds). After the test is complete, the normal operation automatically starts.

(2) If an error message appears on the LCD:
Follow the directions for the solutions described earlier in this document.

* This test can also be run from the included UPS monitoring software.
For more details, refer to the online help for the UPS monitoring software.

4-3 Battery life counter function

This function notifies you with LED display and beep sound when the battery needs to be replaced. The battery life counter operates while commercial power is supplied after shipment. (When the ambient temperature of the battery is higher than 25°C, the value of the counter will be incremented at a faster pace.)

When the battery needs to be replaced, the battery replacement lamp will light up and beep will sound.

* Be sure to reset the battery life counter after replacing the battery.
  Resetting can be performed with “Control” - “Reset B.life counter” in the menu on the LCD.

4-4 LCD menu items

- Display language can be selected from Japanese (default) or English.
- The menu displayed changes with menu type setup. There are a Standard type and an Advanced type. A Standard type (default) is for general purpose. An Advanced type is for administrators.

Additional Information

- If you want to display the LCD in English, set the “Settings” - “Local Setting” - “Language” setting in the menu on the unit’s LCD.
- If you want to display the LCD in Advanced menu type, set the “Setting” - “Local Setting” - “Menu Type” setting in the menu on the unit’s LCD.

*: Displayed only when the UPS is stopped. (Not displayed during operation.)

	Menu	Description	Contents	Menu type
Measurements	Load Meter	Display the applied load in VA and W.	Load Meter: 0 to xxxx W 0 to xxxx VA	Standard
	Input/Output Meter	Display the input/output voltage and frequency.	Input/Output Meter: Input: 0 to xxx.x V, 0 to xx.x Hz Output: 0 to xxx.x V, 0 to xx.x Hz	
	Battery Meter	Display the status of the built-in battery.	Battery Meter: Charge Rate: 0 to 100% Voltage: 0.0 to xxx.xV Runtime (Back up time) : 0.0 to xxx min	
	Longevity	Display the estimated lifespan of the UPS in 5 levels.	Longevity: UPS: display with a five-level indicator Battery: display with a five-level indicator	
	Cumulat. Power Usage	Display the amount of power used so far and the number of days elapsed.	Cumulat. Power Usage: Total: 0 to xxxx kWh Period: 0 to xxxx day	Advanced
	Average Power Usage	Display the average amount of power used so far.	Average Power Usage: 0 to xxxx Wh	

4. UPS functions

*: Displayed only when the UPS is stopped. (Not displayed during operation.)

	Menu		Description	Contents	Menu type
Control	Start Function Test		Perform a self-diagnosis and a test to check for battery deterioration, and then display the results.	Start Function Test · Passed battery testOK · Failed battery test (No battery,weak battery) · Canceled battery test (UPS is on Battery mode, B.capacity is not enough)	Standard
	Reset B.life counter		Reset the battery life counter.	Reset B.life ctr: Are you sure? ⇒ Yes or No	
	Load Segments		Control the ON/OFF of output receptacle group B and C.	Load Segments Out B: ON/OFF Out C: ON/OFF	Advanced
	Reset Power Usage		Reset the values of cumulative power usage and average power usage.	Reset power usage Are you sure? ⇒ Yes or No	
	Dry Contact Test *		Perform a contact test when using a contact signal card (SC07/SC08).	Dry Contact Test BU: ON/OFF BL: ON/OFF TR: ON/OFF WB: ON/OFF	
	Initialization *		Return each of the UPS settings to the factory settings.	Restore F.setting Are you sure? ⇒ Yes or No	
	Maintenance Bypass		Move to Bypass Mode forcibly.	Maintenance Byp. Are you sure? ⇒ Yes or No	
Setting	Local Setting	Language	Set the language to be displayed on the LCD.	Language: Japanese (Default), English	Standard
		LCD Setting	Change the contrast of the LCD.	LCD Setting: Contrast bar	
		LCD Auto OFF	Set the amount of time after which the LCD turns off automatically.	LCD Auto OFF: · Always ON · Auto OFF after 30sec. (Default) · Auto OFF after 30min.	
		LCD Test	Check that the LCD and LEDs light up.	LCD Test: Execute	
		Audible Alarm	Set the beeper status.	Audible Alarm: · ON (Default) · OFF at Battery Mode · OFF at Anytime	
		Calendar Setting	Set the calendar information for the UPS.	Calendar Setting: Year, Month, Day, Hour, Min	
		UPS Installation	Set the date you started using the UPS.	UPS Installation: Year, Month, Day (Default: 2000/1/1)	
		UPS Life Count	Set the UPS life counter status.	UPS Life Count: · Enable (Default) · Disable	
		Menu Type	Select the menu to be displayed. "Standard" displays frequently used items only.	Menu Type: · Standard (Default) · Advanced	

*: Displayed only when the UPS is stopped. (Not displayed during operation.)

Menu			Description	Contents	Menu type
Setting	In/Out Settings	Output Voltage *	Check the output voltage.	Output Voltage: 100 V (Fixed)	Standard
		AC I/P Sensitivity*	Set the input sensitivity. (Note 1)	AC I/P Sensitivity: · Normal (Default) · Low, · High	
		Input Plug *	Set this when replacing the input plug.	Input Plug: 15A, 20A, 30A, Hard wire/50A (dependent on the UPS model) (Default:BN75R/BN150R:15A, BN300R:30A)	
		ECO Mode *	Set whether to enable ECO Mode.	ECO mode: · Disable (Default) · Enable	Advanced
		Frequency Range*	Switch the frequency range mode.	Frequency Range: · Normal Range (Default) · Wide Range	
		Transfer Sensitivity*	Set the sensitivity at which to switch to Battery Mode.	Transfer Sensitivity: · Normal (Default) · High	
	Boot Settings	Auto Reboot	Set auto restart from power failure.	Auto Reboot: · Enable (Default) · Disable	Standard
		Cold Start	Set whether to enable the cold start function that can start up the UPS even when there is no AC input.	Cold Start: · Enable (Default) · Disable	
		Reboot Delay Time	Set the delay time for recovery from power failure.	Reboot Delay Time: 0 to 999sec.(Default: 9sec)	Advanced
		Load Segments	Set this when you want the delay time for restarting receptacle group B and C to be longer than that for group A.	Load Segments: ON delay Out B: 0 to 1800s ON delay Out C: 0 to :0 to 1800s OFF delay Out B: 0 to 1800s OFF delay Out C: 0 to 1800s (Default: above all 0s)	
		Reboot Batt.level	Set the amount of battery charge for restarting the UPS.	Reboot Batt.level: 0 to 100%(Default: 0%)	
		Auto Reboot Mode	Set the mode for rebooting.	Auto Reboot Mode: · Mode A (Default) · Mode B	
		Power SW OFF Mode	Switch the operating mode of the power switch.	Power SW OFF Mode: · UPS shutdown (Default), · UPS+PC Shutdown	
	Battery Settings	Function Test	Set the timing at which to execute the self-diagnostic test.	Battery Test: · Start up/Every 4 weeks (Default) · Start up · Every 4w · Disable	Standard
		Batt.life Counter	Set whether to be notified of the battery life. (Note 2)	Batt.life Counter: · Enable (Default) · Disable	
		Battery Installation	Set the date you replaced the battery.	Battery Installation: Year, Month, Day (Default: 2000/1/1)	

4. UPS functions

*: Displayed only when the UPS is stopped. (Not displayed during operation.)

	Menu		Description	Contents	Menu type
Setting	Battery Settings	Max.backupTime*	Set the output of the UPS to stop after a specified amount of time.	Max.backupTime: Disable (Default) Enable: 10 to 999 sec Enable: 1 to 9999 min	Advanced
		Low Battery Warning *	Set the level at which to detect low battery.	Low Battery Warning: Default (Default), Charge the level: 0 to 100%	
	Dry Contact	BSsignal ValidRange *	Set the status for receiving the BS signal.	BSsignal ValidRange: · Always (Default) · Only battery mode	
		BSsignal Delay Time	Set the delay time for the BS signal.	BSsignal Delay Time: 0 to 9000 sec, or 9999 sec (Default: 0sec)	
		BUsignal Delay Time	Set the delay time for the BU signal.	BUsignal Delay Time: 0 to 180 sec (Default: 0sec)	
		Dry Contact Logic	Set the logic of each contact signal.	Dry Contact Logic: BU, BL, TR, WB: · Normal (Default) · Reverse	
		Remote ON/OFF Logic *	Set the logic of the remote signal. This setting is common for the contact signal card and the remote ON/OFF connector.	Remote ON/OFF Logic: · OFF at Close (Default) · OFF at Open · Disable	
Identification	Type		Display the names of the UPS and battery pack.	Type: UPS: Model number Battery: Model number	Standard
	Serial Number		Display the serial number of the UPS.	Serial Number: S/N: xxxxxxxxxxxxxxG	
	Firmware Version		Display the firmware version of the UPS.	Firmware Version: UPS: M: x.xx, USB: S: x.xx	Advanced
	Memorandum		You can record information of 20 alphanumeric characters.	---	
Log	Fault Log		Display up to 10 fault log records (time of occurrence and details of each failure).	Fault Log: Year/Month/Day/Hour/ Min, Message	
	Shutdown Log		Display up to 10 reasons for shutdown of the UPS.	Shutdown Log: Year/Month/Day/Hour/ Min, Message	
	AC input Log		Display up to 10 event log records	AC input Log: Year/Month/Day/Hour/ Min, Message	
	Reset All Log Data		Clear each log.	Reset All Log Are you sure? ⇒ Yes or No	

Note1: Refer to A specifications Input/Input Voltage Range
Note2: Refer to "6-1 Checking the battery"

5 Measuring the backup time

5-1 How to measure backup time

The backup time you measure for the first time after purchase is the “initial value of the backup time.” You can precisely judge the deterioration condition of the battery if you measure the “initial value of the backup time” in advance at the time of a battery check.

(1) Connect the AC input plug to commercial power and charge the battery for 4 hours (Charging time is extended 24 hours per unit, if additional battery unit is connected).

(2) Turn ON all devices connected to the unit.

(3) Disconnect the AC input plug and measure the backup time.
In Battery Mode, measure the time until the unit automatically stops and all displays disappear.

> The power supply output of the unit will stop when the battery discharges. Conduct measurement under a condition in which no problem occurs even if the power supply of the connected device stops during the process. Do not conduct measurement if there is a possibility of a failure when the power supply stops.

5-2 Estimated backup time

(1) Convert the total capacity (power consumption) of the connected devices to watts (W).
For the indication of connected devices, check your computer and the rear of the display.
The indicator can show values in three different ways: volt-amperes (VA), amperes (A), and watts (W).

Example 1) 100 VAC, 50/60Hz, 145 W
Example 2) 100 VAC, 50/60Hz, 1.8 A
Example 3) 100 VAC, 50/60Hz, 150 VA

Indication	Value
VA	× power factor = W
A	× power factor × 100 = W

For devices that use the VA or A indication, convert the capacity into W. Multiply the value indicated on devices by the value in the right table for conversion.

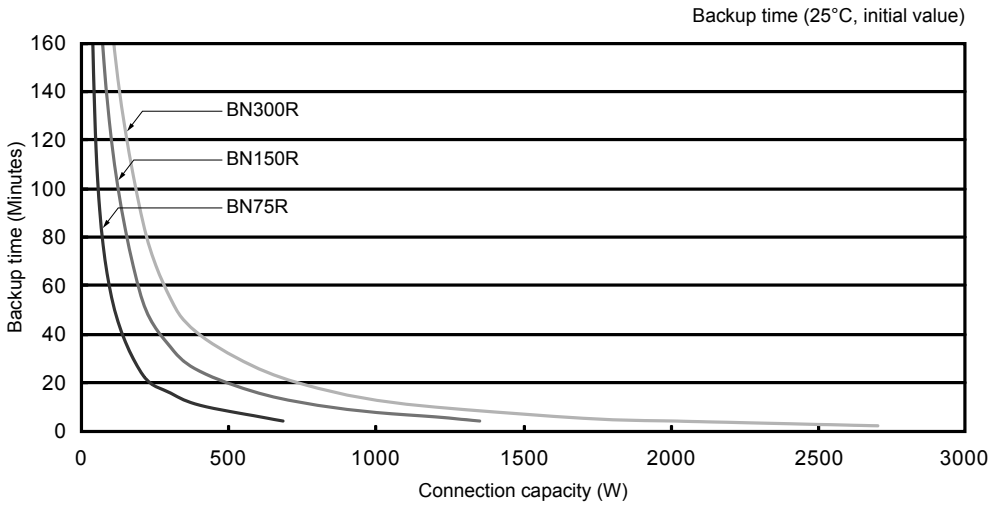
(When the power factor is unknown, enter “1”. The power factor usually ranges between 0.6 and 1.)

(2) Add the values converted into W to obtain the total capacity of the connected devices.

(3) Calculate the initial value of the backup time for the total capacity of the connected devices from the graph below.

- Graph of backup time (graph of initial values for products that have not been used at 25°C)
  The backup time becomes shorter than the graph (table) below when temperature is lower.
- The smaller the capacity of connected devices becomes, the longer the backup time becomes.

5. Measuring the backup time



Backup time table

Time unit: (Minutes)

BN75R

Connection capacity (W)	20	50	100	200	300	400	600	680
Backup time (Minutes)	250	110	55	24	15.5	10.5	5.8	4

BN150R

Connection capacity (W)	20	50	100	200	300	400	600	800	1000	1200	1350
Backup time (Minutes)	480	215	120	56	35	25	16	11	8	6.2	4.5

BN300R

Connection capacity (W)	20	50	100	200	300	400	600	800	1000	1200	1400	1600	1800	2000	2100	2700
Backup time (Minutes)	600	300	170	90	55	40	26	18	13	10.2	8.2	6.4	5	4.5	4.2	2.5

* These backup times are for reference only. Times may vary according to battery life and external environmental conditions (temperature, etc.).

6 Maintenance and Inspection

⚠ Caution (for maintenance)

When maintaining the connected equipment, turn OFF the unit's power switch to stop the output, and stop the supply of commercial power.

- Even if commercial power to the UPS is stopped while it is in operation, the power output of this unit does not stop and power is supplied from the receptacle.

Do not disassemble, repair, or modify the unit.

- Doing so may cause an electric shock or a fire.

If fluid leaks from the unit, do not touch the fluid.

- Doing so may cause blindness or burns.
- If the fluid contacts your eyes or skin, wash it out with lots of clean water and consult your doctor.

Do not throw the unit into fire.

- The lead battery in the unit may explode, or leak dilute sulfuric acid.

Do not insert metal objects into the power supply output receptacles of the UPS.

- Doing so may result in electric shock.

Do not insert metal objects into the battery connectors.
Do not create a short between the connector terminals.

- Doing so may cause an electric shock.

6-1 Checking the battery

The lead battery used in the unit has a limited lifespan.
(The life varies depending on your storage/use environment and backup frequency.)
The nearer the end of the life is, the more rapidly deterioration proceeds.

1. Battery life expectancy (* Not a guaranteed performance)

Ambient temperature	Battery life expectancy
25°C	5 years
30°C	4 years

2. Methods for checking the battery

There are two methods for checking the battery.

- Perform a self-diagnostic test. (See page 30.)
- Measure the backup time. (See page 34.)

By measuring the backup time, the battery life can be determined more accurately.

If the measured value is equal to the "initial value of the backup time" or less than half the value obtained from the graph of "Estimated backup time" on page 35, replace the battery.

- When you compare the "initial value of the backup time" you measured and the current backup time, make the capacity of devices connected to the UPS same as when you measured the initial value to make judgment accurately.

3. Guidelines for how often to check the battery (measure the backup time)

Average ambient temperature	6-month check	Monthly check
25°C	For the first 4 years after starting use	When 4 years or more have passed after starting use
30°C	For the first 3 years after starting use	When 3 years or more have passed after starting use
40°C	For the first 1 years after starting use	When 1 years or more have passed after starting use

*** The battery deteriorates even if it is stored. The higher the temperature is, the shorter the life becomes.**

6-2 Replacing the battery

The battery can be replaced while the unit is stopped (power supply output stopped).

⚠ Caution

When the unit is used in compliance with UL standards, battery replacement should be performed or supervised by personnel familiar with the danger of batteries and the required precautions.

* When the battery replacement LED lights up/blinks and beeper sounds, press the beep stop/test switch for 0.5 seconds to stop the beeper. (Lighting/blinking of “battery replacement” LED does not disappear.)
* If an input power supply error such as a power failure occurs when replacing the battery while in operation, backup cannot be performed and output stops.
* Do not replace the battery during backup operation. Output will stop.

⚠ Caution (for battery replacement)

Perform replacement on a stable and flat place.
- Handle the battery carefully so that you do not drop it.
- Not doing so could cause injury or burns due to liquid (acid) leakage.

Use a specified battery for replacement.
- Not doing so may cause a fire.
- Replacement battery pack for
  BN75R: BNB75R
  BN150R: BNB150R
  BN300R: BNB300R

Do not replace the battery in a place where there is flammable gas.
- Spark may occur when connecting the battery, which may cause an explosion or fire.

If fluid (dilute sulfuric acid) leaks from the battery, do not touch the fluid.
- Doing so may cause blindness or burns.
- If it contacts your eyes or skin, wash it out with lots of clean water and consult your doctor.

Do not disassemble or modify the battery.
- Doing so could cause dilute sulfuric acid leak, which could cause blindness and burns.

Do not drop the battery and do not expose it to strong impact.
- Dilute sulfuric acid may leak.

Do not short the battery with metal objects.
- Doing so could cause an electric shock, fire or burn.
- Some electrical energy still remains inside the spent battery.

Do not put the battery into fire and do not break it.
- The battery may explode or leak dilute sulfuric acid.

⚠ Caution (for battery replacement)

Do not use a new battery and an old battery at the same time.

- Dilute sulfuric acid may leak.
- A battery can present a risk of electrical shock and high short circuit current.The following precautions should be observed when working on batteries:
  1) Remove watches, rings, or other metal objects from the hands.
  2) Use tools with insulated handles.
  3) Wear rubber gloves and boots.
  4) Do not lay tools or metal parts on top of batteries.
  5) Disconnect charging source prior to connecting or disconnecting batteries terminals.
- Servicing of batteries should be performed or supervised by personnel knowledgeable of batteries and the required precautions. Keep unauthorized personnel away from batteries.

Do not dispose of batteries in a fire. The batteries may explode. Dispose of used batteries according to the instructions.

Do not open or mutilate batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.

A battery can present a risk of electrical shock and high short circuit current. The following precautions should be observed when working on batteries:

a. Remove watches, rings, or other metal objects.
b. Use tools with insulated handles.
c. Wear rubber gloves and boots.
d. Do not lay tools or metal parts on top of batteries.
e. Disconnect charging source prior to connecting or disconnecting battery terminals.
f. Determine if battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electrical shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance (applicable to equipment and remote battery supplies not having a grounded supply circuit).

⚠ Attention

Protéger les batteries du feu. Risque d'explosion des batteries. Utilisez les batteries conformément aux instructions.

Ne pas ouvrir ni détériorer les batteries. Les fuites d'électrolyte sont dangereuses pour la peau et les yeux.

Les batteries peuvent présenter un risque de choc électrique avec un fort courant de court circuit. Les précautions suivantes doivent être suivie lors de l'intervention sur les batteries :

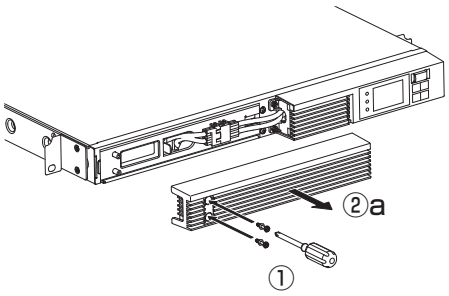
a: Retirer les montres, bagues et autre objets en métal
b: Utilisez des outils a manche isolé
c: Utilisez des gants et des chaussures isolant
d: Ne pas laisser des outils ou des objets métalliques proches des batteries
e: Déconnecter le chargeur avant de connecter ou de déconnecter les batteries
f: Determiner si la pile est mise a la terre. Si elle est mise a la terre, effectuer la deconnection. Le contact avec une pile mise a la terre peut creer un choc electrique. Ceci sera reduit si cette mie a la terre est supprimee pendant installation et maintenance.

■ Procedure for recycling the battery

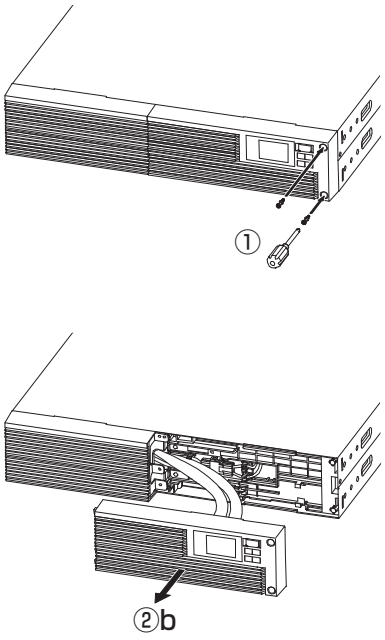
1. Use a screwdriver to loosen (turn counter-clockwise) the 2 screws on the left side (for the BN75R) or right side (for the BN150R and BN300R) of the front panel of the unit. ①

For the BN75R, pull the left side of the front panel towards you to remove it. ② a
For the BN150R and BN300R, pull the right side of the front panel towards you to remove it. Be careful not to pull the cables of the LCD or disconnect the connectors. ② b

<BN75R>

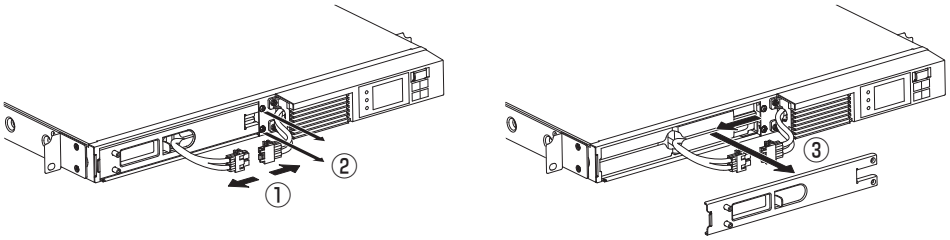


<BN150R/BN300R>



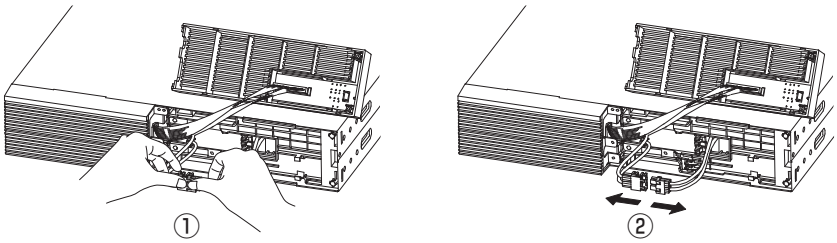
Caution: Do not pull the cables of the LCD or disconnect the connectors.

2. <BN75R>
Pull the battery connectors apart. ①
Remove (turn counter-clockwise) the 2 screws that hold the battery cover in place. ②
Slide the battery cover to the left and pull it towards your right side to remove it. ③

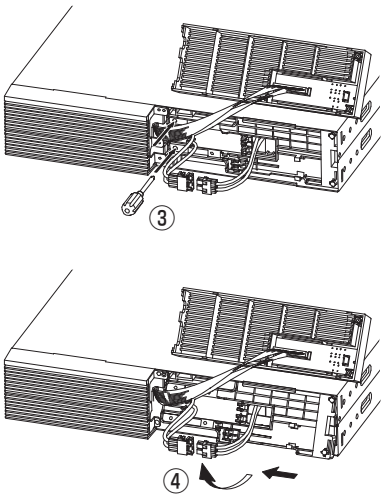


<BN150R>
Red and black battery cables are clamped to the unit; hold and pull them out towards you.
Pull the battery connectors apart ② .

<BN300R>
Hold the battery connectors with both hands, and then, while pressing down on the center of the connectors ① , pull them apart ② .



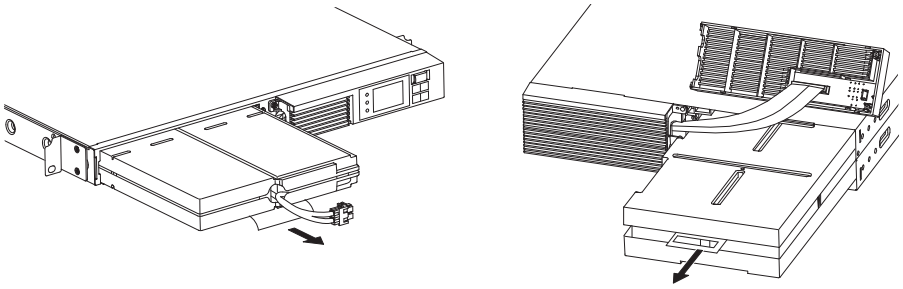
Remove (turn counter-clockwise) the 2 screws that hold the battery cover in place. ③
Slide the battery cover to the left and pull it towards you from the bottom to remove it. ④



3. Remove the battery pack by holding the white label on the bottom of the battery pack (for the BN75R) or by holding the battery pack handle (for the BN150R and BN300R).

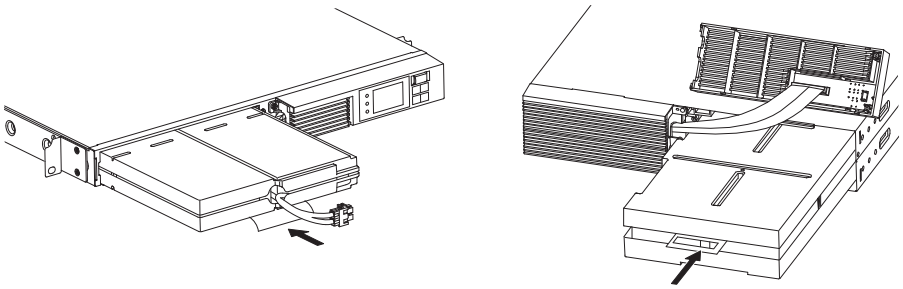
Caution: Do not hold the connector or cable of the battery pack.

Use the red line on the label on top of the battery pack, which is 10 cm from the inner edge of the battery, to gauge how much further you need to pull the battery to remove it. Hold the battery securely with both hands so as not to drop it.

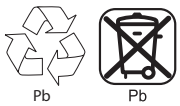


4. Insert the new battery upright into the unit as far as it will go.

- Replacement battery pack
  For BN75R: Model BNB75R
  For BN150R: Model BNB150R
  For BN300R: Model BNB300R



	BN75R	BN150R	BN300R
Nominal voltage of total battery strings	24 VDC (6 V×4 PCS)	48 VDC (12 V×4 PCS)	72 VDC (12 Vx6 PCS)
Nominal capacity of each battery	9Ah		

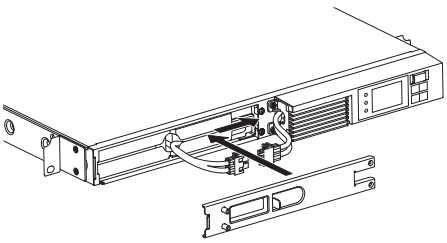


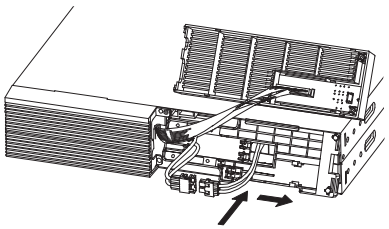
- **CONTAINS SEALED LEAD-ACID BATTERY.**
- **BATTERY MUST BE RECYCLED.**

5. Attach the battery cover.

<BN75R>
Insert the battery cover from the right side, slide it to the left to align the screw holes, and then fix the battery cover with the 2 removed screws.

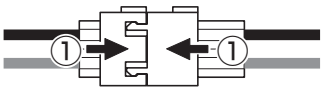
<BN150R and BN300R>
Insert the battery cover from the top side, and slide it to the right to fit into the tabs on the side of the UPS. Fix the battery cover with the 2 removed screws. Be careful not to tighten the screws too much; may strip the screw heads.





6. Securely connect the battery connectors. ①
For the BN150R, fit the battery cables into the clamps on the battery cover.

You may hear a "pop" sound when you connect the battery if it is replaced after the unit's operation is stopped, but this sound is not abnormal.



7. Attach the front panel.
Insert the front panel from the left side (for the BN75R) or right side (for the BN150R and BN300R), and fix it with the 2 screws.

Battery replacement is complete.

<Be sure to reset the battery life counter after replacing the battery.>

After replacing the battery, reset the battery life counter from the "Control" - "Reset B.life counter" screen in the menu on the unit's LCD.

If you do not reset the battery life counter, a battery replacement alarm may occur earlier than the expected battery life.

Write the battery replacement date on the included battery replacement date label, and attach the label to the unit.
Or, enter the battery replacement date from the "Setting" - "Battery Settings" - "Battery Installation" screen in the menu on the LCD.

6-3 Cleaning

1. Cleaning the UPS

Moisten a soft cloth with water or detergent, squeeze it tightly, and wipe the product lightly.

Do not use chemicals such as thinner and benzene. (They cause deformation or discoloration.)

2. Removing dust from the AC input plug, power supply output receptacles of the UPS

Stop all the connected devices and the UPS and disconnect the AC input plug from a wall outlet (commercial power).

Then, remove dust with a dry cloth and make the connection again.

(For information on the connection procedure:)

See also "2-3 Connecting the equipment" → Page 15

7 Using the UPS monitoring software and contact signal

*** If you do not use the UPS monitoring software and contact signal, this step is not required.**

■ UPS monitoring software

“PowerAct Pro”, “Simple Shutdown Software” and “UPS service driver” UPS monitoring software is included with this product. Refer to the table below for details about compatibility. Choose which one to use based on the application. Choose which one to use based on the application. Refer to our home page for details about compatibility.

- **UPS monitoring software correspondence table for each OS**

  https://www.oss.omron.co.jp/ups/support/download/ups.html

- **You can download the latest software at:**

  https://www.oss.omron.co.jp/ups/support/download/download.html

7. Using the UPS monitoring software and contact signal

• UPS monitoring software function list

● Supported ▲ Limited — Unsupported

Function \ Software title		General applications (Simple functions, standalone)			Network management applications (Advanced functions, network support)	SNMP management applications (Advanced functions, network support)
		UPS service driver	OS standard UPS service	Simple Shutdown Software	PowerAct Pro 4.x	SNMP/Web card
Required options		—	BUC26	—	—	SNMP/Web card SC20G
Software function	Auto shutdown (*1)	●	● (*1)	●	●	●
	UPS monitoring (operating status)	●	●	—	●	●
	UPS monitoring (data)	▲ (*2)	—	—	●	●
	Pop-up notification	●	●	—	●	●
	End when OS is inactive (*3)	●	—	—	●	●
	Schedule operation	—	—	—	●	●
	UPS setting change	—	—	—	●	●
	External command execution	●	●	●	●	●
	Event log save	—	—	—	●	●
	Data log save	—	—	—	●	●
	Coordinated shutdown (shutdown of multiple units)	—	—	—	●	●
	Output receptacle control	—	—	—	●	●
	Redundant power supply support	—	—	—	●	●
	Remote UPS management	—	—	—	●	●
	Mail send	—	—	—	●	●
	SNMP management	—	—	—	—	●
	Telnet connection	—	—	—	—	●
	SYSLOG support	—	—	—	●	●

*1) The UPS automatically stops only when the battery is depleted. (Battery Mode continues until the battery is depleted.)
*2) Only the battery capacity can be monitored.
*3) This function is available only for Windows, not for Linux.

[Explanation of software functions]

1	Auto shutdown	The computer can be shut down automatically when a problem occurs with the power supply.
2	UPS monitoring (operating status)	The operating status of the UPS can be monitored (in Commercial Power Mode/Battery Mode).
3	UPS monitoring (data)	Monitoring can be performed for input voltage value, connection capacity, battery capacity, etc.
4	Pop-up notification	When a problem such as a power failure occurs, a pop-up window that shows the details of the problem can be displayed.
5	Shutdown when OS is inactive	Shutdown can be performed when the computer is in an inactive state. The operating status is retained at shutdown in inactive state, so operation details are not lost.
6	Schedule operation	Schedule settings can be made for UPS stop/start.
7	UPS setting change	UPS settings (beep ON/OFF, etc.) can be changed. (Items that can be set vary according to the UPS.)
8	External command execution	By executing commands at shutdown, items such as application programs can be launched.
9	Event log save	Information of events that occur on the UPS (power supply problems, setting changes, occurrences of failure, etc.) are saved as a log.
10	Data log save	Data of input/output voltage value, connection capacity, etc. is periodically saved as a log (the save frequency can be set).
11	Coordinated shutdown	When a problem occurs with the power supply, multiple computers connected to the UPS can coordinate to perform auto shutdown.
12	Output receptacle control	The UPS output receptacles can be individually set to ON/OFF.
13	Redundant power supply support	Two or more UPS can be connected to computers equipped with redundant power supply. Shutdown is not performed when a power supply proble affects only one of the units. Shutdown is performed only when a power supply problem occurs with both UPS, so the system's operating rate is improved.
14	Remote UPS management	The UPS can be managed remotely from a computer on the network.
15	Mail send	When a problem such as a power failure occurs, a notification email describing the problem can be sent to the system administrator.
16	SNMP management	UPS management information can be sent to the SNMP manager.
17	Telnet connection	Settings such as shutdown parameters can be made via the Telnet connection.
18	SYSLOG support	UPS management information can be recorded in SYSLOG.

7-1 When using the included UPS monitoring software to perform auto shutdown

● When using PowerAct Pro

"PowerAct Pro" UPS monitoring software

The included "PowerAct Pro" UPS monitoring software allows you to perform shutdown processing of your PC when a power failure occurs.(It is possible to shut down multiple computers on the network.)

Also, you can perform desired operation by setting the automatic start/stop of the UPS based on the schedule setting.

* The time between the occurrence of a power failure and the shutdown of your PC must be within the backup time measured in "5-1 How to measure backup time" on page 34.
For more information, refer to the Instruction Manual and online help of the UPS monitoring software.

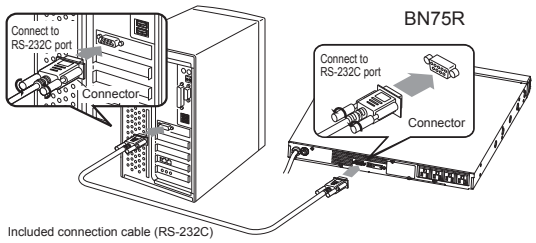
● When using Simple Shutdown Software

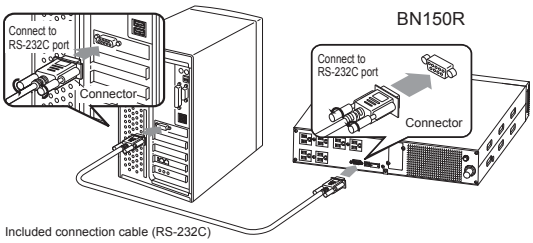
The included “Simple Shutdown Software” allows you to automatically shut down the PC when a power failure occurs. For more information, refer to the manual in the CD-ROM.

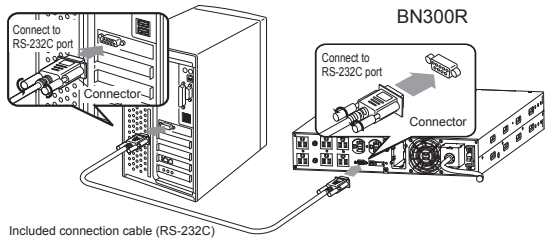
1. Connect the UPS to a computer.

Cable: Included connection cable (RS-232C or USB)
* The RS232C and USB cannot be used at the same time.

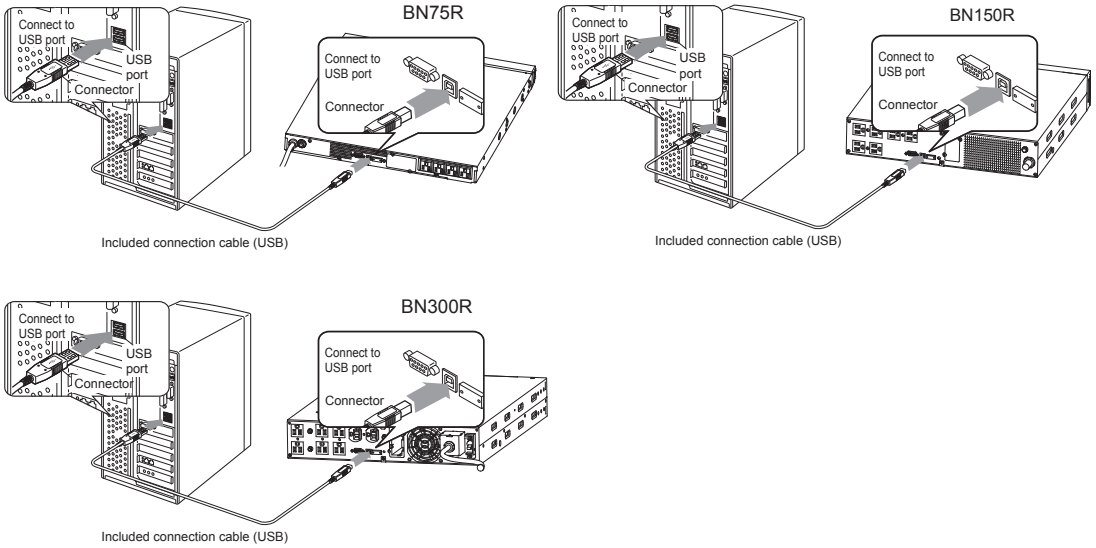
<RS-232C>



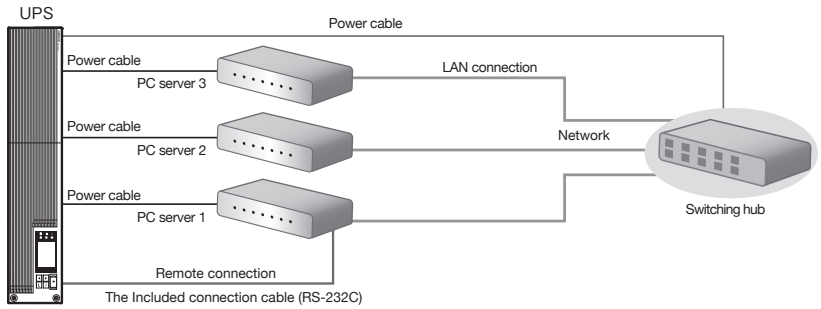




<USB>



*** When connecting 2 or more computers to the UPS □(Only when using PowerAct Pro)**



2. Install the included “PowerAct Pro 4.x” or “Simple Shutdown Software” to the PC you want to shutdown.

Installation method:
For “PowerAct Pro 4.x”, refer to the installation guide (for Windows) in the CD-ROM, or the separate “Quick Installation Guide for UPS Monitoring Software”.
Refer to the manual in the CD-ROM for “Simple Shutdown Software.”

Explanation

Scheduled operation using the UPS monitoring software

● When performing scheduled operation in which the UPS is stopped and a device such as a breaker is used to stop the UPS at the same time that commercial power stops, specify a period of no more than 3 months for the start of the next operation.
If you specify a period longer than 3 months, the internal timer is reset and the scheduled operation does not start.
Note that this period reduces to approximately half when the battery is dead.
If a period of 3 months is exceeded, you start operation by supplying commercial power and pressing the Start Switch. However, if the battery is dead, you may not be able to start operation. In this case, replace the battery according to "6-2 Replacing the battery" on page 37.

Start of operation in scheduled operation using the UPS monitoring software

● To manually start up this unit after it has been stopped by a scheduled operation, turn OFF the power switch and turn it back ON again.
To stop the unit when it is in operation, turn OFF the power switch.

Auto restart after OS closing processing using the UPS monitoring software

● When a power failure occurs, certain PCs (*1) automatically restart immediately after the OS is shut down by auto shutdown.
In this case, the UPS stops during or after the restart of the PC, which may damage files and the hard disk. You can avoid this phenomenon by disabling POWER MANAGEMENT in the BIOS settings of the PC.
*1) Certain PC: It is known that this phenomenon occurs for MICRON's Millennia Mme.

Precautions when “setting the UPS to stop automatically” after OS shutdown

● If, after a power failure occurs, the power is restored while auto shutdown processing is being performed, UPS output stops once after the set time elapses. After shutdown processing is complete, do not turn ON the computer until the UPS has finished restarting.

7-2 When performing auto-save functions using the UPS service in Windows Server 2003/XP + UPS service driver

When using the included "UPS service driver", the OS standard UPS service in Windows Server 2003/XP can be used. When there is a power failure the computer can be shut down.

1. Connect the UPS to a computer.

* Only 1 computer can be connected to the UPS

Cable: Included connection cable (RS-232C or USB)

* The RS232C and USB cannot be used at the same time.

For the connection procedure, refer to “7-1 When using the included UPS monitoring software to perform auto shutdown”.

2. Install the included “UPS service driver” on the computer.

Software to install: UPS service driver
How to install: Refer to the separate “UPS monitoring software installation guide”.

7-3 When performing auto-save functions using the standard UPS service in Windows Server 2003/XP

When using the product with the optional contact signal card (SC07) and optional connection cable (BUC26), the OS standard UPS service in Windows Server 2003/XP can be used. When there is a power failure, the computer can be shut down.

1. Connect the UPS to a computer.

* Only 1 computer can be connected to the UPS

Contact signal card (SC07), sold separately
Connection cable (BUC26), sold separately

For the contact signal card loading procedure, refer to “7-4 Contact signal”.

2. Perform UPS service setup.

You need to make Windows settings in order to perform auto shutdown. There is no need to install software.

7-4 Contact signal

An additional contact signal card can be installed in the contact signal input/output slot on the back of the UPS.

Contact signal card (model number: SC07), sold separately

Contact Signal

You can develop your unique system based on the following specifications to automate the process at a power failure. You can perform power-failure processing by allowing the system to detect the backup signal and also perform system shutdown processing by allowing the system to detect the Low battery level signal. Also, by inputting the backup stop signal from the system, you can stop the UPS with a sufficient battery level to prepare for the next occurrence of a power failure.

7-4-1. Signal output

The UPS has 4 kinds of output signals. The output circuit consists of an open collector circuit using a photo coupler (a kind of electronic switch).

- **Backup Signal output: BU**
  Stays ON during backup operation at a power failure.

BU-COM	ON when a power failure occurs

- **Low battery level signal output: BL**
  Goes ON when the battery becomes weak during backup operation at a power failure.

BL-COM	ON when the battery is low

- **Trouble Signal output: TR**
  Goes ON when an internal failure of the UPS occurs or when the battery life counter expires.

TR-COM	ON when a power failure occurs

- **Battery Replacement Signal output (WB)**
  Goes ON when the test determines that battery replacement is necessary due to deterioration or when the battery life counter goes off-scale.

WB-COM	ON when battery deterioration is detected

7-4-2. Signal input

- **Input of the UPS Stop Signal (BS)**

BS-COM	UPS stops

When the BS signal is ON (High), the output of the UPS is stopped after the time period specified in advance has elapsed. The following settings are available on the LCD.

(1) BS Valid Range: “Setting” - “Dry Contact” - “BSsignal ValidRange”
- Always enabled : The BS signal is received either in Commercial Power Mode or Battery Mode.
- Enabled during Battery Mode: The BS signal is received only in Battery Mode.

(2) BS Delay Time: “Setting” - “Dry Contact” - “BSsignal Delay Time”

You can set the amount of time between when the BS signal is received and when the output of the UPS is stopped.

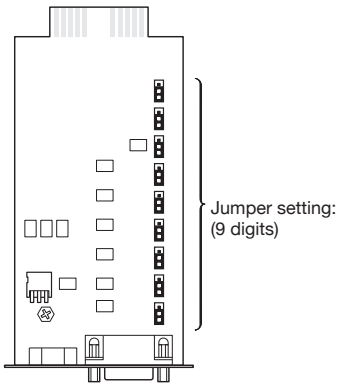
● **Remote ON/OFF Signal**

Remote ON/OFF signals can be used to start and stop the UPS, by using either an externally connected contact or the ON/OFF status of the open collector circuit. To use this function, turn on the Power Switch of the UPS. (Note: When there is no AC power supply, it is not possible to start up UPS by the remote ON/OFF signals even though cold start is set ON.)

Connection terminals are at contact signal connector pins 6 ,7 and the remote ON/OFF connector.

External contact	Operate
Open	Start
Close	Stop

7-4-3. Items that can be set using the contact signal card



■ Setting up when using the unit in the SC05 compatible mode

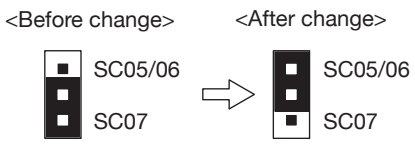
● **Jumper settings**

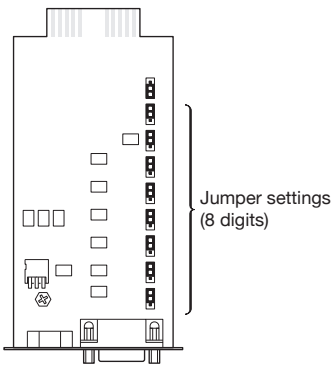
By making jumper settings, the contact signal card SC05/06 connector pin assignments can be changed.

Turn over the contact signal card, and change the contact sugnal card's JP2 to JP9 jumper settings (8 settings) to "SC05/06".

* Use the [SC05/06/07] side for JP10.

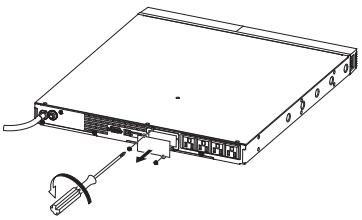
* Factory settings: SC07 side for JP2 to JP9, SC05/06/07 side for JP10





● **Insert method of contact signal card**

(1) Remove the two screws below the signal card expansion slot on the back of the unit, and remove the cover.



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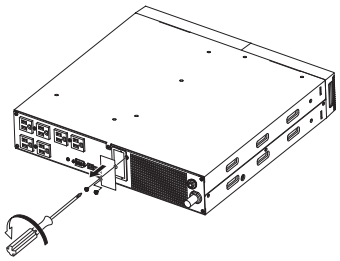

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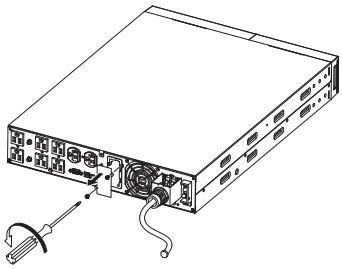
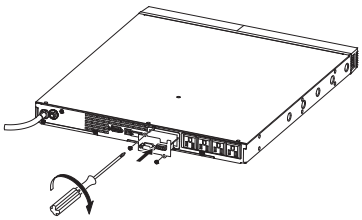


<BN300R>

(2) Carefully insert the contact signal card whose settings have been changed, and securely tighten the 2 screws.



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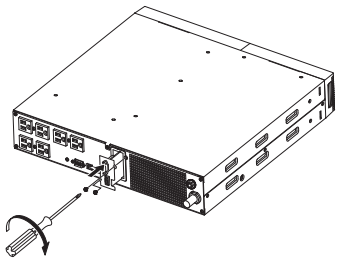

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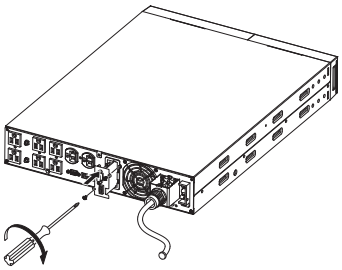

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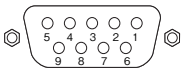
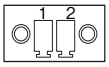
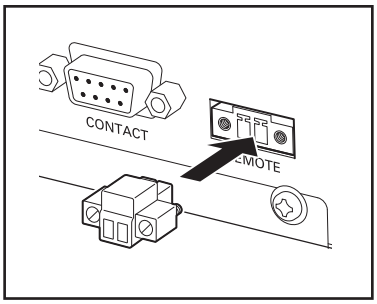
7-4-4. Contact Signal Connector (female DSUB9P)

Pin assignment	Pin number	For jumper setting “SC07” * Factory settings	For jumper setting “SC05/06”
 Front view Screw size: inch screw #4-40 UNC	1	Battery LOW signal output (BL)	NC
	2	Trouble signal output (TR)	Backup signal output (BU)
	3	Backup stop signal input (BS)	Backup reverse signal output (NBU)
	4	NC	COMMON (COM)
	5	COMMON (COM)	Battery Low Signal output (BL)
	6	Remote ON/OFF input (-)	Backup stop signal input (BS)
	7	Remote ON/OFF input (+)	Remote ON/OFF input (-)
	8	Backup signal output (BU)	Trouble Signal output (TR)
	9	Deteriorated battery signal output (WB)	Remote ON/OFF input (+)

7-4-5. Remote ON/OFF port

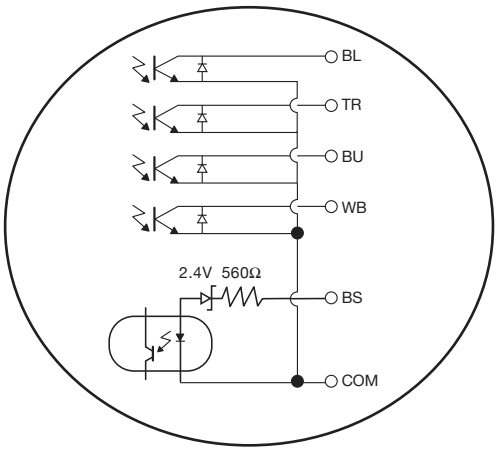
Pin assignment	Pin number	Signal name
	1	Remote ON/OFF (+)
	2	Remote ON/OFF (-)
Front view Screw size: Inch screw #4-40 UNC		

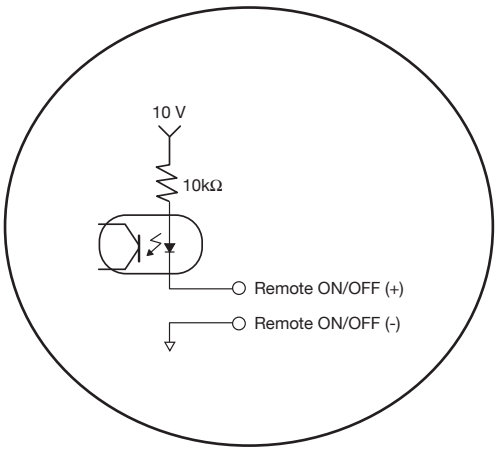


7-4-6. Contact Signal ratings

- Signal output (BL, TR, BU, WB, NBU)
  Photo coupler ratings
  Appliable voltage: 35 VDC or less
  Maximum current: 20 mA
- Remote ON/OFF
  Voltage between terminals: 10 VDC
  Current when closed: max.10 mA
- UPS Stop Signal input (BS)
  Input voltage HIGH(ON) 5 to 12 VDC
  LOW(OFF) 0.7 VDC or less

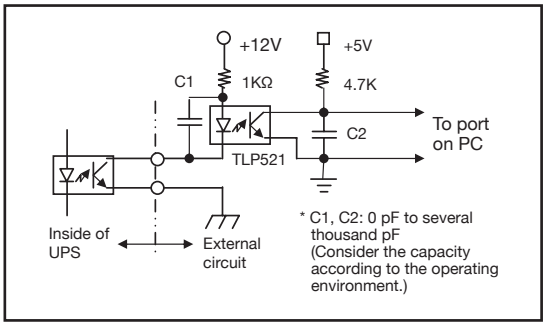
7-4-7. Contact Signal circuit



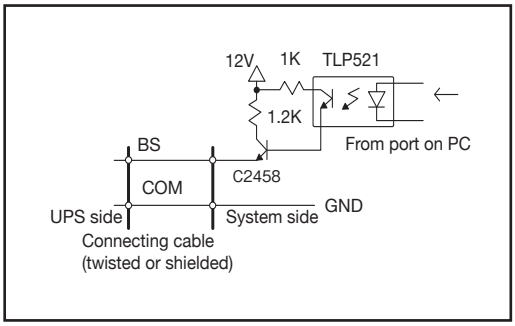


7-4-8. Example of the use of the Contact Signal circuit

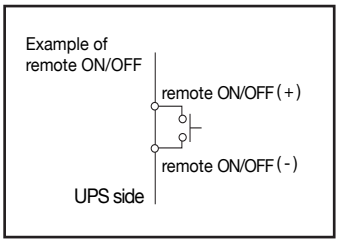
● **Example of BU signal output circuit and the connected circuit**



● **Example of BS signal input circuit and the connected circuit**



● **Remote ON/OFF circuit**



7-4-9. Precautions and notes for the use of the Contact Signal

Notes

● When connecting a device such as a relay that generates counter electromotive force to the signal output circuit, connect diodes that prevent counter electromotive force to both ends of the relay.

Explanation

● When power is restored after the unit stopped automatically during a power failure, the unit automatically restarts and supplies power. If you do not want to start the connected devices, turn OFF their switches or disable the auto startup setting after recovery from power failure (“Setting” - “Boot Settings” - “Auto Reboot” in the menu on the LCD).

A relay output type contact signal card is available for separate purchase.
It can be loaded into the option slot on the back of the UPS.
Visit our website for more details.
(URL: https://www.oss.omron.co.jp/)

• Contact signal card (relay output type) ..... Model number: SC08 (sold separately)

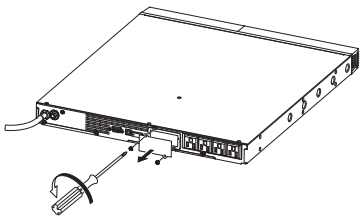
8 Using an SNMP/Web card

8-1 Adding an SNMP/Web card

An SNMP/Web card can be loaded into the option slot on the back of the unit.

- SNMP/Web card (model number: SC20G), sold separately

(1) Remove the 2 screws, and remove the cover.



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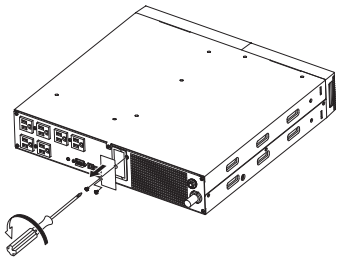

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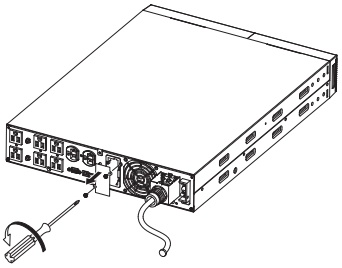
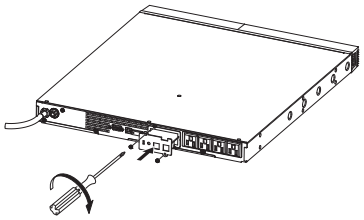


<BN300R>

(2) Carefully insert the SNMP/Web card (model number: SC20G), and securely tighten the 2 screws.



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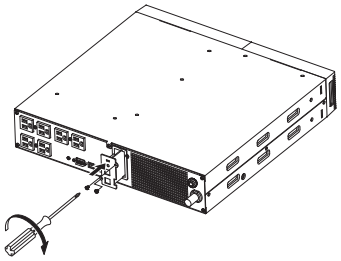

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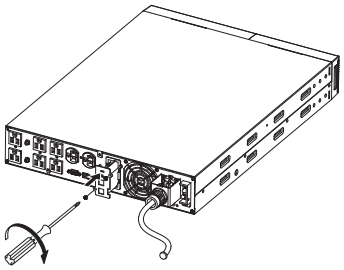


<BN300R>

8-2 SNMP/Web card outline

Description (features)

- Direct connection between UPS and network
  Inserting an SNMP/Web card (SC20G) into the UPS enables a LAN connection, allowing the UPS to be controlled via computers with no serial port.
- Remote UPS management
  Using a commercially available SNMP manager or web browser, you can control the UPS via a computer connected to the network.
- Possible to make function settings for the UPS and SNMP/Web card via a computer on the network UPS and SNMP/Web card (SC20G) parameter settings can be made via any SNMP management station or internet browser. (Functions that act as an SNMP agent can make settings via Telnet and serial connection.)
- Enhanced security functions
  For HTTP and SNMP connections, access can be controlled for each IP.
- Coordinated shutdown
  Multiple UPS can coordinate with each other to perform shutdown.
- Log function
  * The UPS power status, battery status, etc. can be stored in the built-in flash memory.
  * Compatible with SYSLOG.
- Auto shutdown function
  Shutdown is automatically performed when there is a power supply error or when a shutdown has been scheduled. Scheduled operations (auto startup and auto shutdown) can be performed over the network.
- Equipped with UPS standard MIB (RFC1628) and proprietary MIB (swc mib)
- Using JAVA applet to monitor the power supply status
  The power supply status can be visually checked on a graph display.

Specifications

LAN port	10/100 Mbit
Network protocol	SNMP, HTTP, APR, RARP, TFTP, ICMP
Other communication route	Serial connection: asynchronous method (setting only)
Number of controllable computers	32 max. (including slave UPS when coordinated shutdown is enabled)
Support MIB	UPSMIB (RFC1628) OMRON MIB
Operating temperature/humidity	0 to 40°C/25 to 85% * Note that the range of the operating temperature/humidity differs from that of BN-R.
Other	Equipped with real-time lock

For more details, refer to the instruction manual included with the SNMP/Web card.
The most recent firmware can be downloaded from our homepage(https://www.oss.omron.co.jp/).

9 Troubleshooting

Perform the checks shown below if the unit is operating abnormally.

If the unit continues to operate abnormally, please contact the shop of purchase.

Problem	Beep	Output	Charging	Message on LCD Display (Note 2)	Cause	Solution
· The beeper sounds by intermittence	Intermittence of 4 s	ON	OFF/ discharging	Battery mode	In Battery Mode due to power failure or AC input error. Output will stop if Battery Mode continues.	Hold down the [ESC] switch at least 0.5 seconds until the beeper stops. Shut down the connected devices to stop them.
	Intermittence of 2 s	ON	ON	Battery weak (“Battery replacement” LED is lit.) Battery life	The battery test detected a weak battery.	Hold down the [ESC] switch at least 0.5 seconds until the beeper stops. Replace the battery. By separately purchasing a replacement battery, you (the customer) can replace the battery yourself. Reset the battery life counter after replacing the battery.
	Intermittence of 1 s	ON	OFF/ discharging	Battery low	(Same as above) Battery level is low, so output will soon stop.	(Same as above)
	Intermittence of 0.5 s	ON	ON/ discharging	Overload is abnormal	Too many devices are connected and the rated capacity is exceeded. If this state continues, the output may stop (Note 1).	Hold down the [ESC] switch at least 0.5 seconds until the beeper stops. Reduce the number of connected devices until the warning disappears.
· The beeper sounds continuously	Continuous	OFF	---	Output short	Output stopped due to exceeded connection capacity or a shortcircuit with the connected devices.	Hold down the [ESC] switch at least 0.5 seconds until the beeper stops. Check that the AC input of connected devices is not short-circuited, or that the connection capacity does not exceed the rated capacity.
	Continuous	ON	---	Over load time out	Output stops due to overload (Note 1)	Hold down the [ESC] switch at least 0.5 seconds until the beeper stops. Turn OFF the power switches of all devices connected to the unit, reduce the number of connected devices, and turn the power switch back ON again
	Continuous	ON	---	Output over Voltage	Moved to bypass operation due to output voltage error (over) (Note 1).	Hold down the [ESC] switch at least 0.5 seconds until the beeper stops. Turn off all power switches of this unit and connected devices, and turn on the power of this unit only again. If the indication does not change, this unit might be out of order. Please contact the shop of purchase for repair. If the indication changes, the connected device might have caused the failure. If you have any questions, contact the shop of purchase. Note: Output voltage can be viewed by selecting [Measurement] menu - [Input/ Output].
	Continuous	ON	---	Output under Voltage	Moved to bypass operation due to output voltage error (under) (Note 1).	

Problem	Beep	Output	Charging	Message on LCD Display (Note 2)	Cause	Solution
· The beeper sounds continuously	Continuous	ON	---	Bat.over charge	Moved to bypass operation due to battery charge voltage error (over) (Note 1).	Hold down the [ESC] switch at least 0.5 seconds until the beeper stops. This unit might be out of order. Please contact the shop of purchase for repair. Note: Battery voltage can be viewed by selecting [Measurement] menu - [Battery].
	Continuous	ON	---	Bat.under charge	Moved to bypass operation due to battery charge voltage error (under) (Note 1).	
	Continuous	ON	---	Over temperature	Moved to bypass operation due to problem with the internal temperature (Note 1).	Hold down the [ESC] switch at least 0.5 seconds until the beeper stops. Ambient temperature of the UPS may be too high. Check the ambient temperature of the UPS. If the temperature is over 40 degrees C, lower the ambient temperature. Turn off all power switches of this unit and connected devices, and turn on the power of this unit only again. If the temperature is 40 degrees C or lower, this unit might be out of order. Please contact the shop of purchase for repair.
	Continuous	ON	---	Fan fail	Moved to bypass operation due to problem with the internal cooling fan (Note 1).	Hold down the [ESC] switch at least 0.5 seconds until the beeper stops. Make sure that the fan rotation is not blocked. If blocked, remove what is blocking the rotation. If not blocked, the fan unit might be out of order. Please contact the shop of purchase for repair.
· The UPS power does not turn on · The UPS does not output power to the secondary (connected devices) side · Power switch does not work	None	OFF	OFF/ discharging	OFF	There is no AC input.	Check if there is any prob-lem with the power supply, connected to the AC input cable.
	None	OFF	OFF/ discharging	OFF	If the AC Input Overcurrent Protection is working, there are too many connected devices or there was a short-circuit with the connected devices.	Disconnect all the connected devices, set the "AC Input Overcurrent Protection" to the factory setting (*), and turn on the power switch. If the icon does not display properly after you perform the above operation, there is a problem with the unit. *:For BN75R/150R, press the black button. For BN300R, press the AC Input overcurrent protec-tion switch.
	None	OFF	ON	Standby by Bat.level	The UPS does not start up due to the insufficient battery charge.	Set the value of the Standby battery level lower with "Setting"-"Boot Settings"-" Reboot Batt. If it is set to 0%, it does not include the amount of charge of the battery in starting conditions, and so that the UPS will start immediately.

Problem	Beep	Output	Charging	Message on LCD Display (Note 2)	Cause	Solution
· The UPS power does not turn on · The UPS does not output power to the secondary (connected devices) side · Power switch does not work	None	OFF	ON	AC I/P abnormal-VH AC I/P abnormal-VL AC I/P abnormal-FH AC I/P abnormal-FL	AC input voltage or AC input frequency are too low or too high.	Check the voltage and frequency of the input power supply.
	None	OFF	ON	Standby by Remote OFF	Remote ON/OFF Signal is ON, or the "Remote ON/OFF Logic" is set to "OFF at Open" in the menu on the LCD.	Refer to "6. Using the contact signal functions".
·Backup is not possible ·Connected devices stop when a power failure occurs	None	ON	ON	Battery empty	The battery charge is insufficient.	Connect the UPS to a commercial power and charge the battery for at least 4 hours.
	Intermittence of 2 s	ON	ON	Battery weak ("Battery replacement" LED is lit.) Battery life	The battery test detected a weak battery.	Hold down the [ESC] switch at least 0.5 seconds until the beeper stops. Replace the battery. You can replace the weak battery with a separately purchased replacement battery as needed. Reset the battery life counter after replacing the battery.
The fan makes loud noises (The fan rotates faster)	None	---	---	---	The fan operates in High-speed Mode under the following conditions: 1) during the Battery Mode 2) during AVR (automatic voltage regulation) operation 3) during charging the battery (when the battery level is 0 to 95%)	Wait until all the High-speed Mode conditions be non-effective.
·The UPS makes click noises ·The UPS makes click noises even though there is no power failure	None	ON	ON	AVR mode	Variations (decrease) in the input power occur frequent-ly. Or, noise may be included that significantly distorts the voltage waveform of the input power.	Check the installation conditions of the UPS with the following points: ·if the UPS is connected to the thin extension cables, ·if the UPS is connected to the same commercial power supply with a large power-consuming device, and other points.

Note 1: In bypass operation, commercial power is output directly.
Output stops when a power failure (AC input OFF) occurs in bypass operation.
If 100% of rated capacity is exceeded under commercial operations, the bypass operation starts in 5 minutes. If 115% is exceeded, the operation immediately stops. If 105% of rated capacity is exceeded under backup operations, the output stops in 30 seconds. If 125% is exceeded, the output immediately stops.

Note 2: Maximum 2-types message may be displayed by turns on the LCD.

不间断电源（UPS） 使用注意事项

OMRON

承蒙惠购本公司的不间断电源 (以下简称 UPS)，谨致谢意。
使用前，请务必仔细阅读本文的“使用注意事项”。

1. 前言

UPS 的用途

- 本装置的设计和生产目的是为了用于计算机等 FA、OA 设备。
  请勿用于要求高度可靠性或安全性的下述用途。
  · 直接关系到人类生命安全的医疗设备
  · 可能导致人体受伤的用途。（直接影响飞机、船舶、铁路、电梯等运行、运转、控制等用途）
  · 车载、船舶等可能随时发生振动的用途。
  · 发生故障后可能对社会、公共财物造成重大损失或影响的用途。
  （主要的电子计算机系统、中枢通信设备、公共交通系统等）
  · 相当于上述用途的设备
- 关系到人类生命安全、可能对维护公共职能带来重大影响的装置等在实现系统多元化、紧急备用发电设备等的应用维护及管理方面尤其需要慎重。
- 使用时请务必严守使用说明书中所记载的使用条件、环境要求等。
- 尤其在要求高度可靠性的重要系统等上使用时，请务必向 欧姆龙自动化（中国）有限公司进行咨询。
- 请勿对装置进行改造或加工。

免 责 事 项

即使是因使用本公司产品而发生的事故，本公司对于包括装置・连接设备・软件的异常、故障所造成的损失及其他次生损失的所有损失赔偿概不负责。

其 他

- 我们在首页记述了安全注意事项，请务必在仔细阅读后正确使用。
- 将本装置转让、转卖于第三方时，请务必连同本装置附带的所有资料等一并转让。
  本装置符合附件资料等所记载的条件标准。
  · 说明书中记载了相关安全事项等。请务必确认相关内容后再开始使用。
  此外，万一使用说明书遗失，请联系 欧姆龙自动化（中国）有限公司。

2. 安全注意事项

为了确保安全使用，以下将就相关重要事项进行说明。
设置或开始使用前请务必仔细阅读。

● 本使用说明书中的相关安全符号及其含义如下所述。

⚠ 危 险	表示操作失误可能会导致人员伤亡的内容。
⚠ 注 意	表示操作失误可能会致残、导致物质损失的内容。

※ 所谓物质损失，是指房屋、家产以及家畜、宠物相关的连带损失。

 ：表示禁止（不可发生的行为）。例如  表示禁止擅自拆卸。

 ：表示强制（必须的行为）。例如  表示必须进行接地连接。

此外，即使是注意事项中所记载的内容，也可能根据不同的状况而导致严重后果。
这里记述的均为重要内容，请务必严守。

⚠ 危 险（产品用途）

不得将本装置用于下述要求高度可靠性或安全性的用途。

※ 本装置的设计和生产目的是为了用于计算机等 FA、OA 设备。

- 直接关系到人类生命安全的医疗设备或系统。
- 直接关系到人身安全的相关用途。（例如：车辆、电梯等的运行、运转、控制等）
- 发生故障后可能对社会、公共财物造成重大损失的用途。（例如：主要的电子计算机系统、中枢通信设备等）
- 相当于上述用途的设备

⚠ 注 意（设置・连接时）

以下机种的搬运、取出、设置作业需 2 人以上执行。

● 有受伤、掉落、翻倒等危险。

搬运时应注意重量分配平衡，并放置于安全稳定的场所使用。

● 一旦翻倒或掉落可能导致受伤。
● 万一掉落时，请立即停止本装置的使用，并委托相关单位进行检查和维修。
主机重量请参照使用说明书。
维修事宜请向 欧姆龙自动化（中国）有限公司 客户服务中心维修部 咨询。

包装用塑料袋请放置于幼儿无法触及的场所。

● 万一幼儿蒙住头部则可能导致呼吸困难的危险。

⚠ 注 意（设置・连接时）

本装置的“AC 输入”插头必须连接至符合产品规格的额定输入电压、频率 50/60Hz 的电源插座。

- 如果连接至不同电压、频率的电源插座，则可能引起火灾。
- 可能导致本装置发生故障。

发现异常（异常声响、异味）时，应关闭“电源”开关停止输出，然后从电源插座上拔掉“AC 输入”插头。
“AC 输入”插头应设置为可从电源插座上随时拔去的状态。

- 为了确保安全，连接设备维修保养时等也应按上述标准执行。

不得连接烘干机、部分电磁阀等电流只在交流电源半周期内流动的半波整流设备。

- 可能因过电流而导致不间断电源发生故障。

应连接至电流容量在产品规格的最大电流以上的电源插座。

- 电源配线可能会发热。
- 连接了最大输出容量的设备时所流动的电流值请参照使用说明书。

应正确进行接地连接（接地）。

- 请在确认电源插座的插头形状后，再将本装置的“AC 输入”插头直接插入插座。若未执行接地连接，则可能因故障或漏电而导致触电事故的发生。
- 在“AC 输入”插头上使用 3P-2P 转接头时，请务必在将“AC 输入”插头插入电源插座前进行接地连接（接地）。
- 需要拆除接地连接(接地)时，请务必将“AC 输入”插头从电源插座上拔掉后再执行。

不得擅自拆卸、维修、改造。

- 可能有导致触电、火灾的危险。

不得设置于指定范围以外的方向。

- 一旦翻倒或掉落可能导致受伤。
- 若设置于指定范围以外的方向，电池发生漏液时则无法发挥保护作用。

不得在超出产品标准运转环境温度的场所使用。

- 电池快速老化。
- 可能导致本装置发生故障、操作失误。

使用保管环境不得超出规格范围。
不得在以下场所执行设置或保管。

- 不得在超出产品标准保管温度、湿度的状态下保管。
- 不得在超出产品标准运转环境温度、湿度的状态下使用。
- 无缝隙的橱柜等封闭性场所／存在易燃性气体或腐蚀性气体的场所、阳光直射的场所、灰尘极多的场所、产生振动或施加冲击力的场所、室外等。
- 可能导致火灾等的发生。

⚠ 注 意（设置・连接时）

不得连接超出本装置输出容量的设备。
可通过电源板等增设连接设备，但这种情况下不得连接超出电源板等电流容量的设备。

- 本装置检测到过载（超负荷），停止输出。
- 电源板的配线发热，可能导致火灾。

不得在夹住或捆住电缆的状态下使用。

- 可能因电缆损伤或发热而发生触电、火灾的危险。
- 若电缆上发现伤痕，请立即停止本装置的使用，并委托相关单位进行维修。

维修事宜请向 欧姆龙自动化（中国）有限公司　客户服务中心维修部 咨询。
同一捆包的所有附件仅限本装置使用。请勿在其他设备上使用。

- 为了确保设备的安全使用，请务必遵守。

吸排气口不得堵塞。

- 内部温度上升可能导致本装置发生故障、电池老化。
- 请设置于距离墙面 5cm 以上的场所。

不得将变压器、绝缘变压器等连接至输出侧。

- 可能因过电流而导致不间断电源（UPS）发生故障、或运转异常。
- 即使连接至输入侧，也依然可能导致不间断电源（UPS）发生故障、或运转异常。请务必事先检查运转状态后再开始使用。

不得连接无法通过商用电源运转的设备。

AC 输入插头和电缆的颜色不得搞混。
不得在连接商用电源的状态下执行本装置的 AC 输入插头连接作业。

- 更换作业详细内容请参照产品的使用说明书。

设置于机架上使用时，应将本产品设置于机架的最下层。

- 一旦掉落可能导致受伤。
- 安装时应使用附带的螺钉。

不得连接额定电压超出 AC200V ～ 240V 以上的设备。

- 本装置的额定输出电压为 AC200 ～ 240V。
- 可能因过电压而导致连接设备发生故障。
- 使用时应安装输出用接线排的外盖。此外，已取下外盖的状态下不得开启“电源”开关。开启“电源”开关后，可能会因输出用接线排施加了电压而导致触电。

⚠ 注 意（使用时）

不得沾湿、浇水。

- 可能会导致触电、火灾。
- 万一沾水时，请立即停止本装置的使用、拔掉 AC 输入电缆，并委托相关单位进行检查和维修。
  维修事宜请向 欧姆龙自动化（中国）有限公司 客户服务中心维修部 咨询。

已达到使用寿命的电池应立即更换、或停止本装置的使用。

- 继续使用可能会因漏液而导致火灾、触电事故的发生。

环境温度	平均寿命
25℃	5 年
30℃	4 年

※ 以上为标准使用条件下的平均寿命，非确定值

“AC 输入”插头、电源输出插座上的灰尘应及时用干布擦去。

- 灰尘长期附着可能会导致火灾的发生。

不得在封闭性场所、或盖上外盖的状态下使用。

- 可能会导致异常发热或火灾。

发现异常声响或异味、冒烟、内部溢出液体现象时，应立即切断本装置的“电源”开关，并从电源插座上拔去“AC 输入”插头。

- 若在这种状态下继续使用，则会导致火灾的发生。
- 若发生这种状况，请立即停止使用，并拔去 AC 输入插头，然后委托购买产品的店铺、或 欧姆龙自动化（中国）有限公司 客户服务中心维修部 进行检查和维修。
- 使用中发生异常时，请从电源插座上拔去“AC 输入“插头后待机。

不得触摸从内部溢出的液体。

- 有导致失明、烧伤的危险。
- 若接触到眼睛或皮肤，请立即用水充分冲洗，并接受医生的诊治。

机箱上面不得放置其他物品、也不得有重物落下。

- 可能因机箱的歪斜或损坏、内部电路故障而导致火灾的发生。

即使因内部控制电路功能发生故障或操作错误而停止，依然可以提供向连接设备供电的旁路输出电路。

- 即使前面板显示全部消失，输出依然会继续。
- 前面的输出电源开关将无法执行 ON/OFF 切换。
  想要停止输出时，请切断商用电源的供给源、或从电源插座上拔去 AC 输入插头，则请关闭本装置背面的输入过电流保护开关“INPUT PROTECTION”。

若输入插头在运转状态下脱落，绝对不得触摸输入插头的金属部位。

- 有触电的危险。
- 本装置单机漏电在安全标准（漏电：1mA）以下，但连接设备的漏电增加，故请绝对不要触摸输入插头的金属部位。
- 本装置在运转状态时，无论运转时间长短，均会通过内部电路在输入插头的金属部位产生电压。

⚠ 注 意（维护时）

进行连接设备保养时，必须在关闭本装置的“电源”开关、并拔掉“AC 输入”插头的状态下执行。

● 本装置的电源输出在不间断电源（UPS）为运转状态时，即使拔掉“AC 输入”插头也不会停止输出，将会以插座作为供电源进行供电。

不得擅自拆卸、维修、改造。

● 可能有导致触电、火灾的危险。

不得触摸从内部溢出的液体。

● 有导致失明、烧伤的危险。

● 若接触到眼睛或皮肤，请立即用水充分冲洗，并接受医生的诊治。

不得将本装置扔至火中。

● 本装置内置铅酸蓄电池，故可能会发生电池爆炸、稀硫酸泄漏。

不得将金属物体插入不间断电源（UPS）的“电源输出”插座。

● 可能会导致触电

不得将金属物体插入电池连接口。

● 可能会导致触电。

更换作业应在稳定且平坦的场所执行。

● 请小心托住以防电池掉落。

● 可能因掉落而导致受伤、或因漏液（酸）而导致烧伤等危险。

不得使用指定范围以外的更换电池。

● 可能导致火灾的发生。

不得在有易燃性气体的场所更换电池。

● 连接电池时会产生火花飞溅现象，可能会导致爆炸或火灾。

电池发生漏液时不得触摸泄漏的液体（稀硫酸）。

● 有导致失明、烧伤的危险。

● 若接触到眼睛或皮肤，请立即用水充分冲洗，并接受医生的诊治。

不得擅自对电池进行拆卸、改造。

● 不得触摸泄漏的稀硫酸，否则可能会导致失明、烧伤等。

小心电池掉落、不得对其施加强大冲击力。

● 可能会发生稀硫酸泄漏。

不得通过金属物体使电池短路。

● 可能会导致触电、起火、烧伤等。

● 即使是使用后的电池，其内部依然会残存电能。

⚠ 注 意（更换电池时）

不得将电池扔至火中、或将其毁坏。

● 电池可能会发生爆炸，稀硫酸可能会发生泄漏。

不得将新旧电池混合使用。

● 可能会发生稀硫酸泄漏。

注 意 事 项

由低温场所移动至温暖场所后，请搁置数小时后再开始使用。

● 突然移动至温暖场所后会有水分附着（结露），若直接通电则可能导致故障发生。

购买后请尽快充电（应达到产品标准充电时间以上）。

● 购买后若长时间搁置，则可能导致电池性能退化以致无法使用。

● 将本装置的“AC 输入”插头插入电源插座即可对电池进行充电。
本装置的“AC 输入”插头请务必连接至符合产品规格的额定输入电压、频率 50/60Hz 的电源插座。

保管本装置时，请对电池进行产品标准充电时间以上的充电后再关闭“电源”开关。

● 电池即使不使用也会在内部自然放电，长时间搁置后会呈现过放电状态。由此导致后备时间缩短、以致无法使用。

● 需长期保管时，推荐环境温度为 25℃以下。

保管温度在 25℃以下时请在 6 个月以内、40℃以下时请在 2 个月以内将本装置的“AC 输入”插头连接至达到产品标准充电时间以上的电源插座。

● 保管期间请关闭本装置的“电源”开关。

请注意避免本装置输出电路之间、以及输出电路接地上发生短路。

● 可能导致本装置发生故障。

请勿在后备式运转状态下将“AC 输入”插头插入本装置的“电源输出”插座。

● 可能导致本装置发生故障。

请勿将页式打印机（激光打印机等）连接至本装置。

● 页式打印机的峰值电流较大，可能会被检测到连接容量过载。

将本装置与自备电源等电源频率较大变动的设备配套使用时，请务必事先检查运转状态后再开始使用。

● 本装置在接收输入电源时会自动识别输入电源频率。若在输入电源频率非规定值的状态下连接本装置，则可能导致电源频率的错误识别、以致无法正常运转。（在本装置已启动的状态下从商用电源切换为发电装置的电源时不会发生异常。但是，请确保发电机和商用电源的频率达到一致。）

请勿将本装置放置于阳光直射的场所进行保管。

● 可能会因温度上升而导致内置电池快速老化以致无法使用。

注 意 事 项

切断商用电源前，请先关闭本装置的“电源”开关。

● 切断商用电源后，即会进入后备式运转。后备式运转的频率越高，表示电池使用寿命可能越来越短。

将本装置用于线圈、马达等感应性设备上时，请务必事先检查运转状态后再开始使用。

● 有些种类的设备可能会因冲击电流等影响而导致本装置无法正常运转。

请勿执行耐压试验。

● 电源输入线中装有浪涌吸收器，若执行耐压试验则会导致浪涌吸收器受损。

● 执行绝缘电阻试验时，请在 DC250V 范围内执行。

将本装置转让、转卖于第三方时，请务必连同本装置附带的所有资料等一并转让。本装置符合附件资料等所记载的条件标准。

● 本说明书中记载了相关安全事项等。请务必确认相关内容后再开始使用。
此外，万一使用说明书遗失，请联系购买产品的店铺。

请勿使用会因产品标准切换时间内的瞬间停电而发生异常的设备。

● 后备式、在线互动式不间断电源（UPS）在停电时进入后备式运转需要切换时间。在要求具有……高度电源稳定性的设备上使用时，可能会因输出电压的瞬间变动而导致连接设备停止运转。切换时间相关内容请参照使用说明书。

若在“输出 200V 模式”范围以外使用本装置，则请务必事先检查运转状态后再开始使用。

● 后备式运转时，输出（正弦波）的最大电压值（峰值电压）有时会低于商用电源下运转时的数值。因此，根据不同的连接设备，有时可能无法正常运转。

本产品中使用了铅酸蓄电池 (铅蓄电池)。

● 铅酸蓄电池需要进行回收。使用后的电池请寄至以下地址。

欧姆龙自动化（中国）有限公司
http://www.fa.omron.com.cn/

讲　解

关于日常运转方法

● 本装置的“电源”开关既可始终为开启状态（运转状态）、也可在每次停止连接系统运转时切换为关闭状态。请用户采用便于使用的方法即可。长期不使用连接设备时，建议关闭“电源”开关。

● 将本装置的“AC 输入”插头插入电源插座即可对电池进行充电。
本装置的“AC 输入”插头请务必连接至符合产品规格的额定输入电压、频率 50/60Hz 的电源插座。

关于后备式运转的退出

● 长时间停电后，电池会发生放电现象，来自本装置的电源输出将会停止。请在本装置尚处于供电状态下正常退出计算机系统（保存数据等操作）。

关于重启

● 若电池在停电中发生放电现象，本装置将会停止运转。之后若停电等电源异常恢复正常，本装置将会自动重启并重新开始供电。无需运转连接设备时，请关闭本装置的“电源”开关、或连接设备的开关。

讲　解

关于自动关机软件的排程运转

● 若想在停止本装置运转的同时、执行通过断路器等停止商用电源供电的排程运转，请将开始下次运转的间隔时间设定为 3 个月以内。超出 3 个月时，内部定时器将会被复位，故不会按排程设定开始运转。
同时，该期间若电池寿命缩短则会减半。
超出 3 个月后，通过供电和开启“运转”开关即可开始运转，但若电池已达到使用寿命时，则可能无法开始运转。这种情况下，请按使用说明书所记述的方式更换电池。

请采取对策，以防数据保护或系统冗余化等无法预测的事态发生。

● 不间断电源（UPS）有时会因内部电路的故障而停止输出。

关于自动关机软件的排程运转

● 采用排程运转时，若在排程停止期间停止商用电源的输入，那么开始下次运转的间隔时间最多请设定为 1 个月。
停止商用电源输入期间，定时器通过内置电池执行操作。
定时器停止时，则不会按排程设定开始运转。

关于通过自动关机软件使停止中的排程开始运转

● 在排程停止期间开始运转不间断电源时，请关闭电源开关一次，然后再重新开启电源开关。
通过手动方式启动不间断电源。

关于通过关机软件退出 OS 后的自动重启

● 在特定计算机 *1 上，停电时会发生通过自动关机软件退出 OS、然后计算机立即重启的现象。
这种情况可能会导致不间断电源在计算机重启中或启动后停止运转，以致文件或硬盘受损。
将计算机 BIOS 设定内的 POWER MANAGEMENT 改为 Disable（无效）即可防止此现象的发生。

*1）特定计算机：此现象已在 MICRON 生产的 Millennia Mme 上得到确认。

● 计算机无法自动重启时，请在计算机的 BIOS 设定中选择“输入电源恢复后的系统启动”设定项目（例：Restore on AC/Power Loss）、并将其设定修改为“输入电源恢复后启动系统”（例：Power On）。另外，根据所使用的计算机的不同，BIOS 的设定方法或显示项目有所差异。请查看所使用的计算机使用说明书、或联系计算机支持中心。

● 若您正在探讨输入电源恢复后使计算机自动重启的系统课题，则请选择满足以下条件的计算机。关于通过输入电源进行供电时的计算机运转状况，请查看计算机使用说明书、或联系计算机支持中心。

【条件】
通过输入电源供电时，计算机无需开启自身的电源开关即可启动。

● 停电时，若刚退出即恢复供电，不间断电源则会自动启动并开始供电。无需运转连接设备时，请关闭设备的电源开关。

● 使用附带的自动关机软件后，还可设定为无需自动重启。

References

A. Specifications

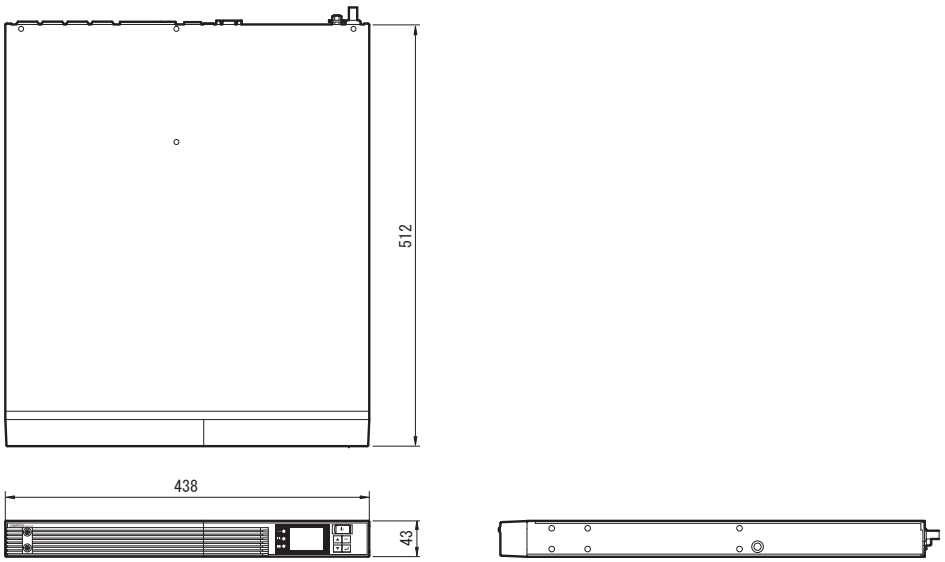
Model			BN75R	BN150R	BN300R
Method	Operation method		Line-interactive method		
	Cooling method		Forced air cooling		
Input	Rated input voltage		100 VAC		
	Input voltage range	Sensitivity setting: Standard	89±3 to 118V±3 VAC		
		Sensitivity setting: Low	84±3 to 118V±3 VAC		
		Sensitivity setting: High	89±3 to 113V±3 VAC		
	Input maximum current		12A	20A	40A
	Frequency		50/60Hz±4Hz		
	Phase		Single-phase, two-wire (grounded)		
	Input protection		NFB(13A)	NFB(25A)	NFB(45A)
	AC input plug		3P (NEMA 5-15P)	3P (NEMA 5-15P) *1	3P (NEMA L5-30P) *2
Output	Rated output capacity		750VA/680W	1500VA/1350W *1	3000VA/2700W *2
	Voltage	Commercial operation	90±3 to 114V±3 VAC (Sensitivity setting: Standard) 84±3 to 114V±3 VAC (Sensitivity setting: Low) 90±3 to 110V±3 VAC (Sensitivity setting: High)		
		Backup operation	100 VAC±6%		
	Frequency	Commercial operation	Synchronized with input frequency		
		Backup operation	50/60Hz±0.1Hz		
	Waveform	Commercial operation	Sine wave		
		Backup operation	Sine wave		
		Distortion rate *3	20% max. (Rectified load, at rated output) 15% max. (Resistance load, at rated output)		
	Phase		Single-phase, two-wire (grounded)		
	Output receptacles		NEMA 5-15R x 4	NEMA 5-15R x 6	NEMA 5-15R x 6 NEMA 5-20R x 2
Battery	Type		Sealed lead battery		
	Voltage / Capacity x Quantity		6 V / 9 Ah × 4	12 V / 9 Ah × 4	12 V / 9 Ah × 6
	Backup time (25°C, initial characteristics)		4 min. or more	4.5 min. or more	2.5 min. or more
	Charging time *7		4 hours 90%		
	Battery life	Ambient temperature 25°C	Expected life: 5 years		
Environment	Operating environment temperature/ humidity		0°C to 40°C, 25 to 85%RH with no condensation		
	Storage temperature		-15°C to 50°C, 10 to 90%RH with no condensation		
	Safety standard		UL1778		
	Disturbance voltage / Radiated interference field strength		VCCI Class A		
	Internal power consumption (normal/ maximum)		50W (*4) / 100W (*5)	100W (*4) / 200W (*5)	150W (*4) / 300W (*5)
	Noise		38 dB max.	50 dB max.	50 dB max.
Dimensions (W x D x H)			438mm x 512mm x 43mm	438mm x 437mm x 87mm	438mm x 650mm x 87mm
Weight of unit			Approx. 13.5kg	Approx. 21.5kg	Approx. 32kg

*1 For BN150R, the maximum output (1.5kVA/1.35kW) cannot be used with the standard input plug (NEMA 5-15P). To use with maximum output, replace with a 20A plug. (A 20A plug is included in the accessories.)
*2 For BN300R, the maximum output (3.0kVA/2.7kW) cannot be used with the standard input plug (NEMA L5-30P). To use with maximum output, connect to the terminal block (purchased separately).
The standard equipment input plug (NEMA L5-30P) cannot be connected to a household receptacle.
*3 Rectified load, rated load, in Battery Mode (except in BL state)
*4 Rated load/ Rated input voltage/ When fully charged
*5 Rated load/ Rated input voltage/ When battery charge current is at maximum

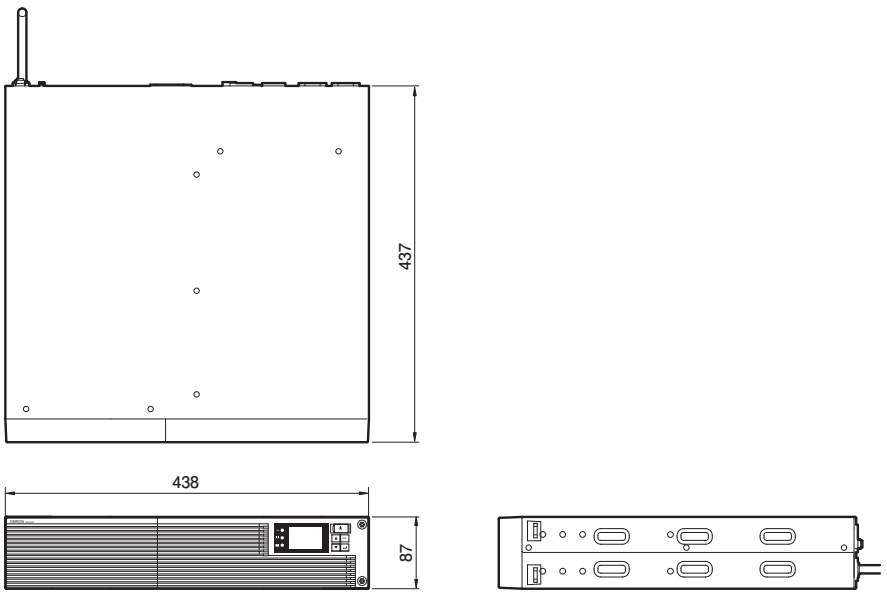
B. Dimensions

• BN75R

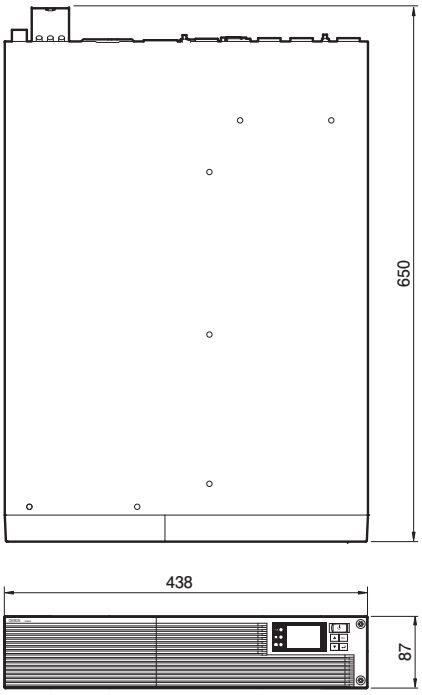
<Unit: mm/ Tolerance: ±2mm>



• BN150R



• BN300R



• Rubber feet

<Unit: mm/ Tolerance: ±2mm>

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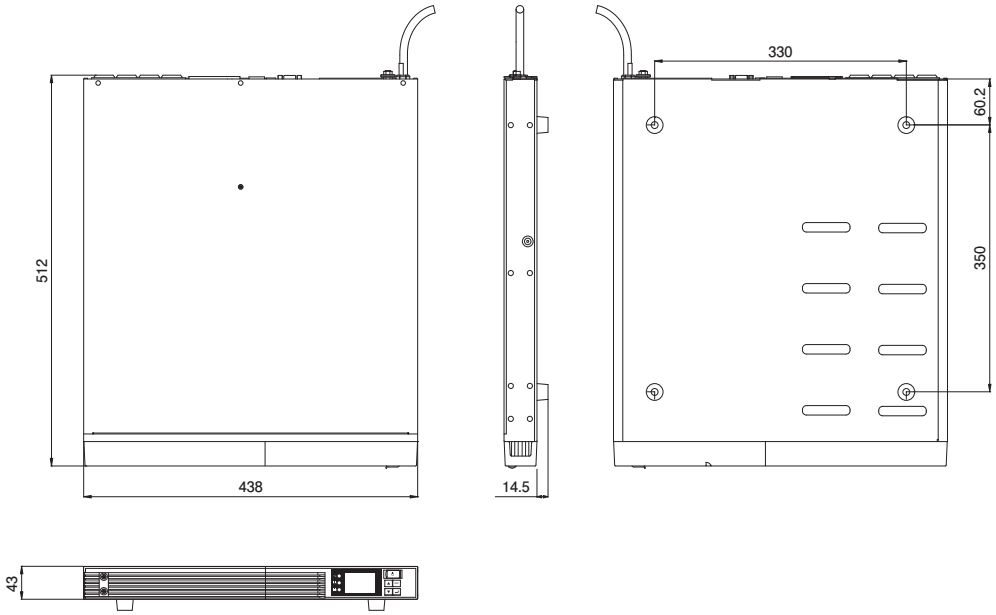

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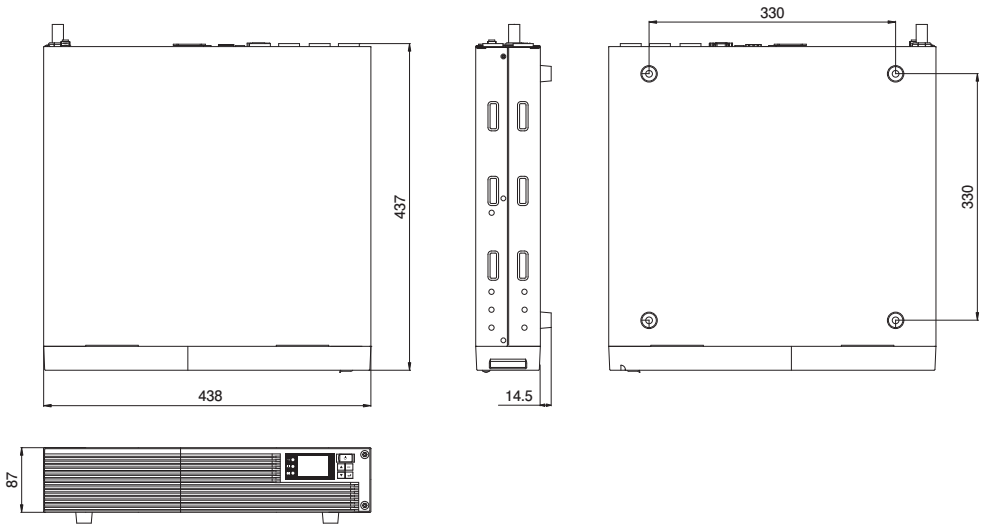

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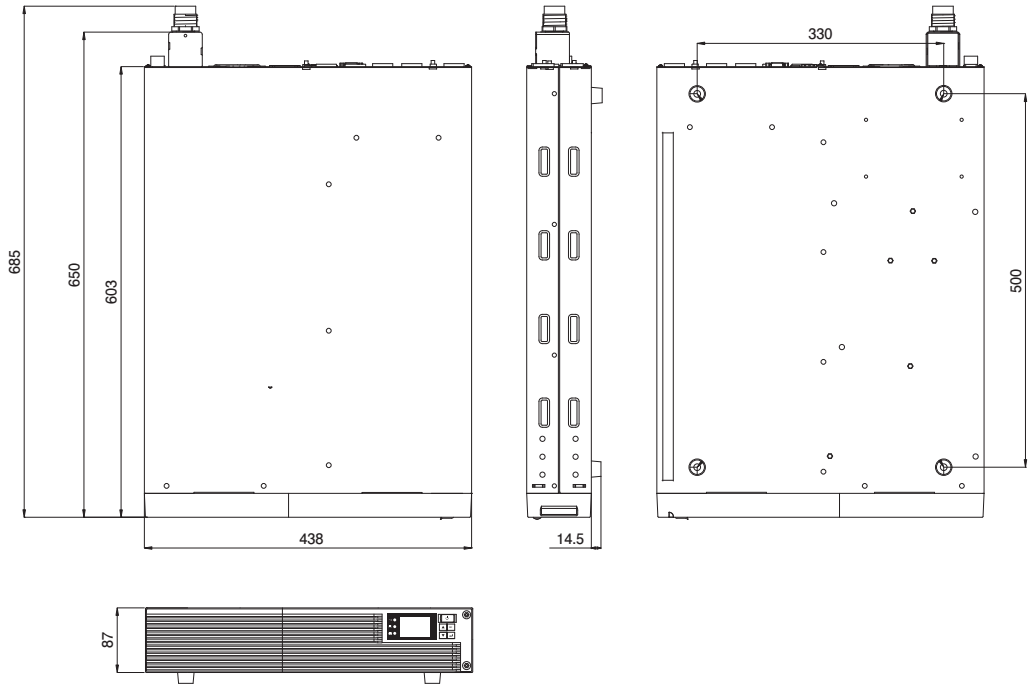

• Rackmount

<Unit: mm/ Tolerance: ±2mm>

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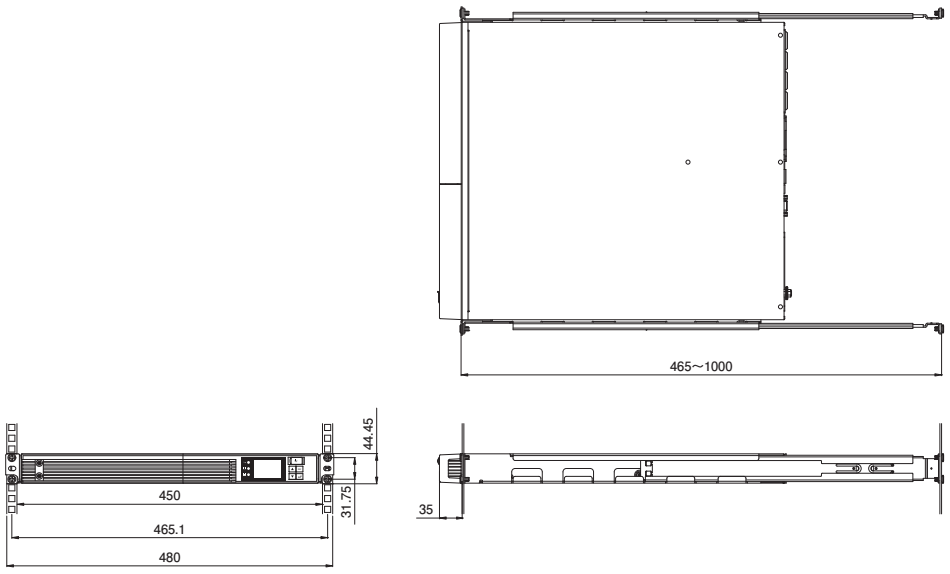

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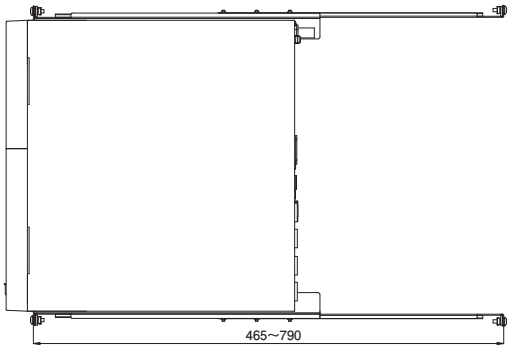

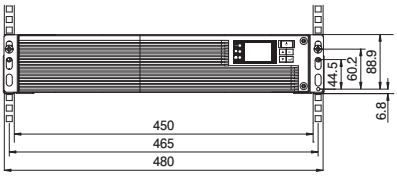

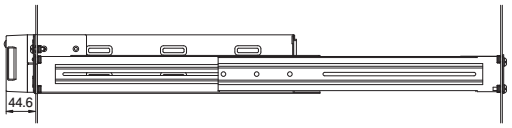

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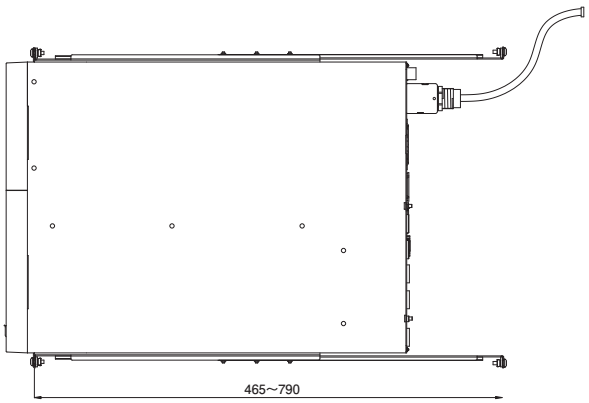
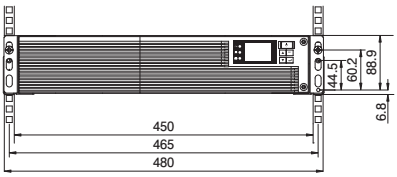
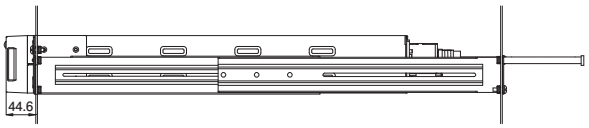
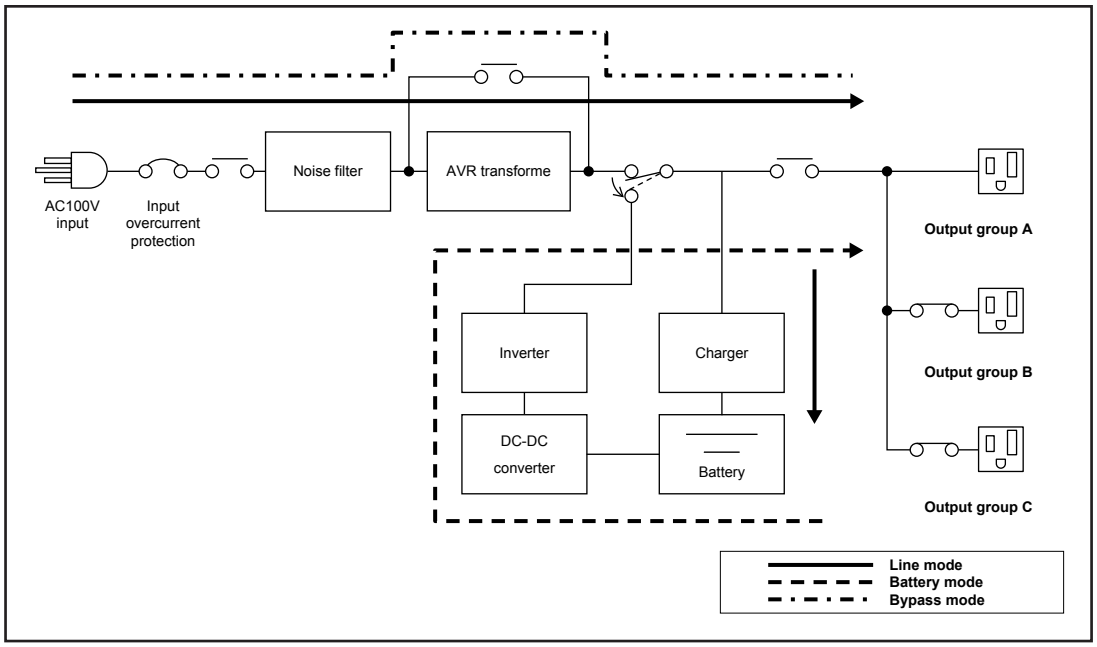




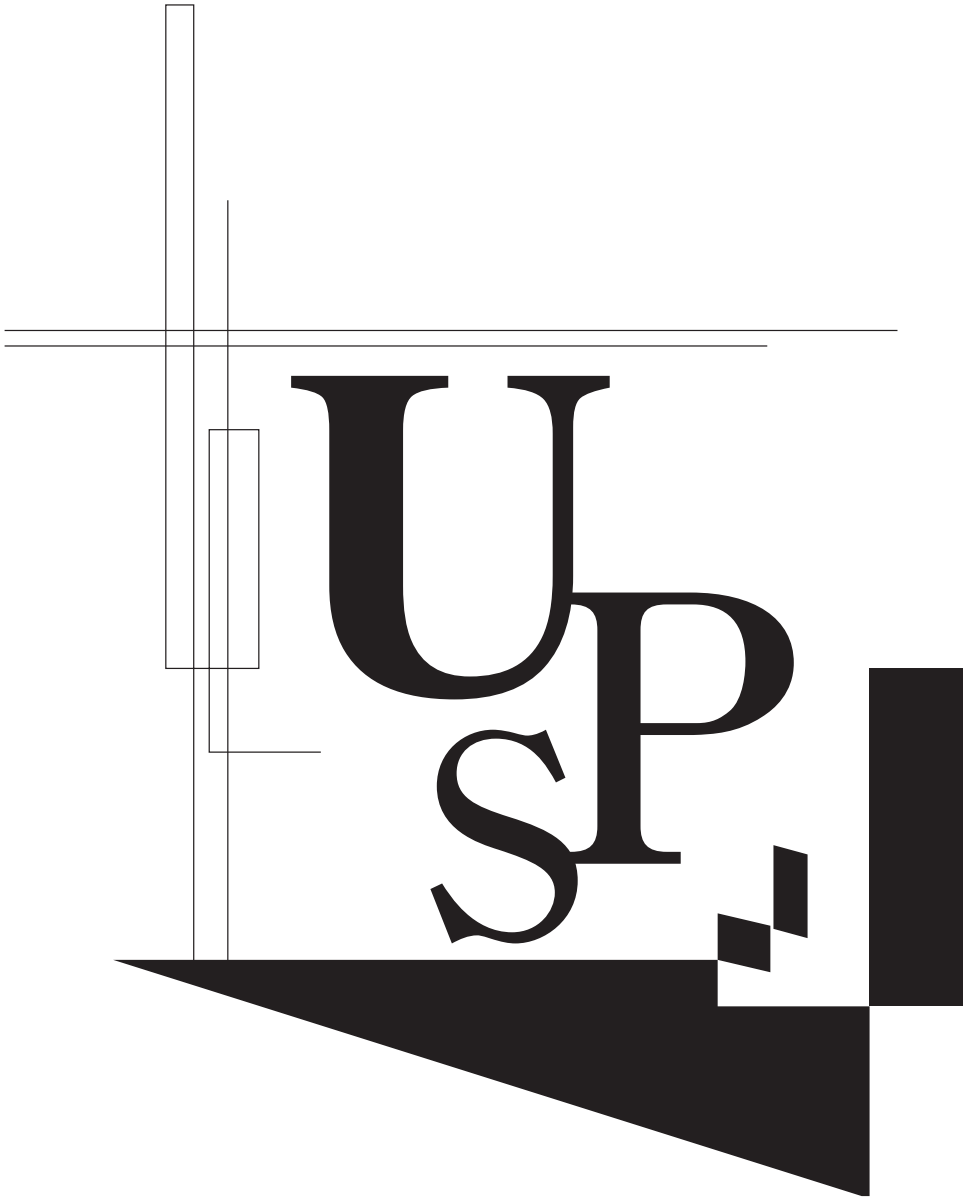


C. Circuit block diagram



D. Related products

Description	BN75R	BN150R	BN300R
Replacement battery pack	BNB75R	BNB150R	BNB300R
SNMP/Web card	SC20G	SC20G	SC20G
Connection cable for Windows UPS service	BUC26	BUC26	BUC26
Contact signal card	SC07	SC07	SC07
Contact signal card (relay output type)	SC08	SC08	SC08



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