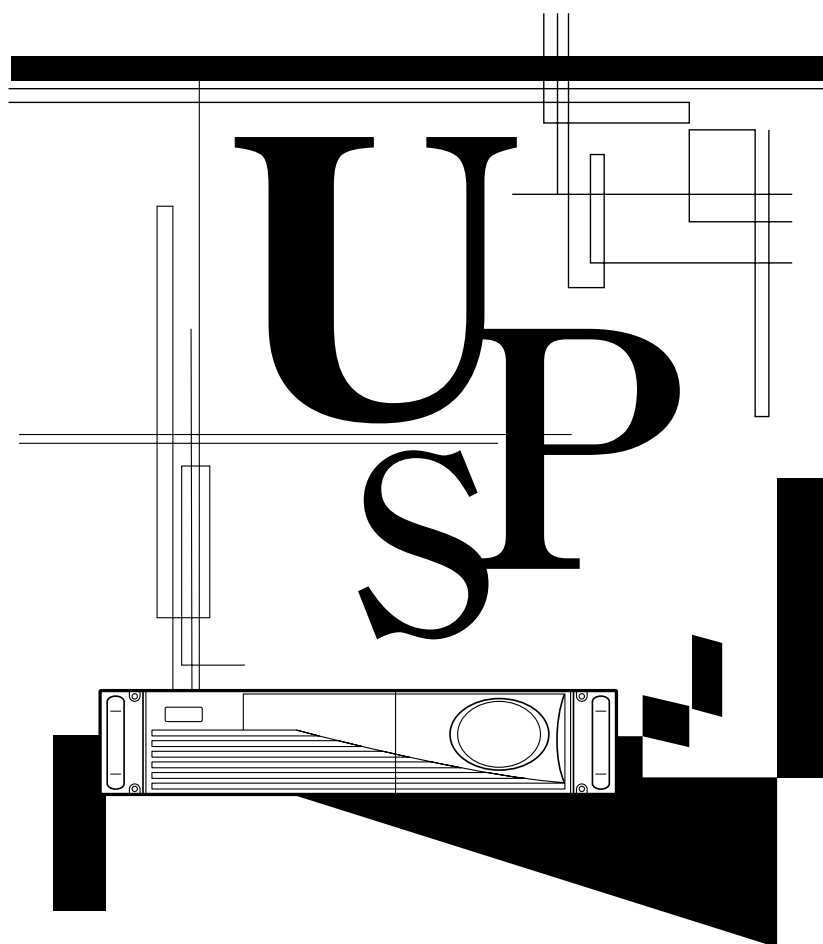


OMRON

Uninterruptible Power Supply (UPS)

POWLI BU100XR2 / BU200XR2

Instruction Manual



* Read this instruction manual before the installation and use of BU100XR2/ BU200XR2 because it gives you the critical do's and don'ts of the devices.

* Keep this instruction manual within easy reach where you will install BU100XR2/BU200XR2 so that you can read it whenever necessary.

No part or whole of this manual may be reproduced without permission.

The contents of this manual are subject to change without notice.

Introduction

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

- The UPS protects computers and other devices from surge voltage (a phenomenon in which extraordinary high voltage occurs instantaneously) caused by power failures, voltage variations, instantaneous voltage drops and power failures, and thunders.
- Under usual service conditions, the UPS converts commercial power into a direct current, and reconverted from the direct current to the 100-VAC output of stable sine wave.
When detecting a failure of commercial power, the UPS switches itself to the uninterruptible power supply mode, and feed the output of a sine wave through devices linked to the UPS.
The UPS is especially useful where power supply conditions are bad (for example, large voltage variations).
- Output capacities are 1KVA/700W for BU100XR2 and 2KVA/1.4KW for BU200XR2.
- The UPS provides the function of the Network Line Surge Protection to protect communications apparatus such as modems from surge voltage that comes through the line (a phenomenon in which extraordinary high voltage occurs instantaneously).

Notes on the use of the Backup UPS

- The UPS is designed and manufactured for OA equipment such as personal computers.
Do not use the UPS with the devices that require very high reliability and safety as listed below.
 - ◇ Medical devices that may cause death directly
 - ◇ Particular applications of devices that may cause injury (applications that directly affect the operation and control of planes, ships, railroads, elevators, and others)
 - ◇ Applications that are always subjected to vibration such as cars and ships
 - ◇ Applications in which a failure of the UPS may cause critical damage or effect on public safety (major computer systems, main communications equipment, public transportation systems, and others)
 - ◇ Devices with the similar level of importance
- For the devices that adversely affect the safety of people and maintenance of utilities in the event of failure, special considerations related to operation, maintenance, and management of the system must be taken such as a standby system for emergency use and an auxiliary power generator.
- Observe the do's and don'ts of this instruction manual related to the operating and environmental conditions.
- When you want to add the UPS to the critical system that requires very high reliability, contact us; _____.
- Do not modify/alter your UPS.
- The UPS is tailored to a domestic use only. Do not use the product abroad (outside Japan).
 - ◇ Voltages and frequencies may differ abroad and may cause a failure and/or fire.

IMPORTANT SAFETY INSTRUCTION

1. SAVE THESE INSTRUCTIONS.

This manual contains important instruction for Model BU100XR2/BU200XR2. That should be followed during instruction of the UPS and batteries.

2. SYMBOL



This symbol indicates earth ground.



This symbol indicates turning on UPS.



This symbol indicates turning off UPS.

3. INTERNAL BATTERY.

Internal battery voltage is 36Vdc for BU100XR2, 72Vdc for BU200XR2.

4. TEMPERATURE RATING.

Maximum ambient temperature of UPS 40°C.

5. ENVIRONMENT

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



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Directions for safe use



Read this instruction manual before the installation and use because it gives you the critical do's and don'ts of your UPS.

- 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 (don'ts). For example,  indicates that disassembly is prohibited.

 : Indicates compulsory (do's). For example,  indicates that grounding is a must.

Notice that do's and don'ts of "Caution" may bring about a serious accident according to the circumstances. These do's and don'ts are critical and must be observed strictly.

Warnings

Do not disassemble, repair, and/or modify your UPS.

- Doing so may cause an electric shock or fire.



If battery liquid leaks from the UPS, do not touch it.

- Doing so can lead to blindness and/or or burns.
- If the liquid gets in eyes or spills on your skin, wash them with clean water and see a doctor.



An electric shock or short may occur

- Do not put you hand into the opening of the battery when replacing the battery.
- Do not insert a metal thing into the inside of the battery.



Warnings (uses of the UPS)

Do not add the UPS where very high reliability and safety are required as listed below. (The UPS is designed and manufactured for uses of OA equipment, such as personal computers.)



- Medical devices and/or system that may cause death directly
- Applications that may adversely affect the safety of people (for example, the operation and control of automobiles and elevators)
- Applications that adversely affect the maintenance of utilities in the event of failure (for example, critical computer systems and trunk lines)
- Applications with the similar level of importance

Cautions (installation)

Unpack and carry out the UPS bearing the weight in mind. Place and run the UPS on a structurally sound base.



- Toppling and dropping may cause injury.
- The weight of the UPS

BU100XR2: 19kg

BU200XR2: 12kg (main unit)

MB100XR2: 26kg (add-on battery unit)

MB200XR2: 26kg (battery unit)

Keep packing materials including plastic bags and films out of the reach of children



- When children swallow or put their head into the packing material, it may bring about the danger of suffocation.



Cautions (installation)

Provide secure grounding

- Earth the ground terminals of the UPS and devices connected to the UPS. (See "2. Installation and connection" on page 12)
You may receive an electric shock in the event of trouble or power failure. When both the UPS and devices are not grounded and touch both, you may receive an electric shock.
- When you use a 3-pin to 2-pin adaptor for an AC Input Plug, be sure to perform grounding before putting the AC Input Plug in a wall outlet (commercial power). On the other hand, be sure to perform disconnecting a grounding terminal after removing the AC Input Plug from a wall outlet (commercial power).
- Connect the UPS grounding terminal to a grounded-type wall outlet (commercial power) to make working the Power Line Surge Protection and the Network Line Surge Protection as intended.



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

- An battery deterioration will occur rapidly and may cause a fire.
- Doing so may cause a failure or malfunction of the UPS.



Do not install or store the UPS in the places as listed below.

- The humidity is lower than 10%. The humidity is higher than 85%. An enclosed space such as a cabinet with no crevice. Near flammable gas and/or corrosive gas. Outdoors.
- Doing so may cause a fire.



Do not obstruct the air inlets and outlets on the upper and rear sides of the UPS.

Do not place the UPS in an enclosed space or put a cover the UPS.

- Doing so may lead to an abnormal overheat or fire.
- Temperature will increase inside the UPS and may cause a failure of the UPS and battery deterioration.
- Install the UPS 5cm away from the wall or further.



Do not install the UPS in the other orientations.

Do not install the UPS on a structurally unsound base.

- See "2-2 Installing" on page 12.
- Toppling and dropping may cause injury.



When you want to install your UPS horizontally, secure the supplied rubber seats in the four corners of the underside of the UPS.

- Toppling and/or dropping may occur and cause injury.



Be sure to use supplied mounting screws.

- Other screws rather than supplied screws may cause dropping due to insufficient strength.



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

- Dropping may cause injury.
- The weight of the UPS

BU100XR2: 19kg

BU200XR2: 12kg (main unit)

MB100XR2: 26kg (add-on battery unit)

MB200XR2: 26kg (battery unit)



Do not install the UPS alone but ask your colleagues for help.

- Dropping may cause injury.



Cautions (connection)

Plug the UPS in a wall outlet (commercial power) with a current capacity larger than the maximum input current of the UPS.

- Otherwise, the power cord may be heated.
- For the device that requires power equivalent to the current capacity of the UPS or larger, BU100XR2 feeds 10.2A while BU200XR2 feeds 20A.





Cautions (connection)

Be sure to put the input plug of the UPS in a 100VAC (50/60Hz) wall outlet (commercial power).



- Putting the input plug in a wall outlet (commercial power) of a different voltage may cause a fire.
- The UPS may fail.

Do not connect devices that exceed the output capacity of the UPS. You can add extra devices with a plug strip. Note that the plug strip does not permit to plug in the device, which exceeds the current capacity of the plug strip.



- The UPS may detect overload and stop the output.
- The plug strip cord may heat up and could lead to a fire.



Cautions (use)

In a case where the Battery Replacement Lamp comes on or the backup time becomes shorter than the required backup time, replace with a new battery pack while the UPS is running, or stop the UPS and discard the old battery pack.



- The continuous operation of the UPS may cause a fire.
- For further information on how to inspect the battery, see "6. Maintenance and inspection" on page 33.

Ambient temperature	Estimated life expectancy
20°C	4 to 5 years
30°C	2 to 2.5 years

* The left table shows the estimated life expectancy of a battery pack on the ground that the battery is used in the usual way. They are not the warranty period.

In case where you notice abnormal sound or smell, smoke, or liquid from the inside of the UPS, press the Stop switch of the UPS immediately and remove the AC Input Plug from a wall outlet (commercial power).



- A continuous operation under the abnormal conditions may cause a leakage of current or fire.
- If you notice the abnormal conditions, never operate the UPS and contact the distributor from which you purchased your UPS or us for inspection and repair.
- Your UPS must permit to remove AC Input Plug from a wall outlet (commercial power) instantly at the onset of a failure.

When the input plug accidentally become removed while the UPS is running, never touch the metal part of the input plug.



- Doing so may cause an electric shock.
- A leak current of the UPS is less than the value of safety standard (leak current: 1mA) however, the leak current may increase due to the devices connected. Therefore, never touch the metal part of the input plug.



Cautions (use)

Do not place things on the UPS or do not drop metal things into the UPS.

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



Do not place the UPS in an enclosed space or put a cover over the UPS.

- Doing so may lead to an abnormal overheat or fire.



Do not wet or spill water on the UPS

- Doing so may cause an electric shock or fire.



Do not insert a metal thing into the Power Supply Output receptacle of the UPS.

- Doing so may cause an electric shock.



Do not insert metal things into the battery connector or add-on battery connector.

- Doing so may cause an electric shock.



Cautions (maintenance)

Before maintaining devices connected to the UPS, turn off the UPS and remove the AC Input Plug from a wall outlet (commercial power).

- Even if you remove the AC Input Plug during the operation of the UPS, the backup function of the UPS keeps feeding power through the power supply output receptacle of the UPS.
- In a case where the scheduled operation is ON and the AC Input Plug of the UPS is put in a wall outlet (commercial power), the UPS starts feeding power at the starting time of the scheduled operation.



Cautions (battery replacement)

Do not short the battery with a metal thing.

- Doing so may cause a burn or fire.
- A dead battery keeps some current remaining.



Do not toss a battery into the fire. Do not try to break a battery.

- The battery may explode or dilute sulfuric acid may leak.



Do not use any batteries unless otherwise specified.

- Doing so may lead to a fire.
- Battery model: BP100XR



Do not use a new battery and an old battery all together

- Dilute sulfuric acid may leak



Do not drop the battery or do not give strong impact on it.

- Dilute sulfuric acid may leak.



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

- A spark may occur when connecting the battery, and lead to a fire.



Replace a battery on a structurally sound base.

- Hold the battery securely with your both hands to avoid dropping.
- Not doing so may cause injury due to falling, burns, or liquid (acid) leakage.



Do not carry the replaced battery pack upside down.

- If liquid (dilute sulfuric acid) leaks from the battery, there is a danger of burns or blindness.



Do not disassemble or modify the battery.

- Doing so may cause a leakage of dilute sulfuric acid, which may cause blindness and burns.



Notes

Charge the battery (for at least 8 hours) immediately after purchasing the UPS.

- If you do not use your UPS for a long time after purchasing, the battery characteristic may deteriorate and become unusable.
 - After putting the AC Input Plug of the UPS in a wall outlet (commercial power), the battery is automatically charged.
-

When you want to store the UPS, charge the battery for at least 8 hours.

- In a case where you do not use the battery, it discharges spontaneously and gets into over discharge status after it is left for a long time. The backup time may become shorter or the battery may become unusable
 - The expiration date of the battery installed in the UPS is 6 months after charging it for at least 8 hours.
 - If you want to store the battery longer than 6 months, put the AC Input Plug of the UPS in a wall outlet (commercial power) for at least 8 hours before the expiration date is exceeded.
 - Press the stop switch of the UPS for storage.
-

Do not reverse the connection of Line/Hub Side and Modem/TA/PC Side of the Network Line Surge Protection.

- If a protection circuit failure occurs, the line side (telephone/ISDN line) may be damaged.
-

Do not give a short between the output lines of the UPS, as well as a ground fault between the output lines and the ground.

- The UPS may fail.
-

Do not put the AC Input Plug of the UPS in the Power Supply Output Receptacle of the UPS.

- The UPS may fail.
-

Turn off the UPS before opening a circuit breaker or removing the AC Input Plug from a wall outlet (commercial power).

If you cannot stop the UPS for some reason, bring the UPS to automatic stop through the UPS monitoring software, which requires the least backup time.

- You can start the backup mode of the UPS simply by cutting off commercial power to the UPS and keep devices running until the battery gets discharged. That way when you repeat charges and discharges many times, the life expectancy of a battery pack becomes extremely short.
The less you repeat charges and discharges, the longer the life expectancy of the battery will become.
-

Do not connect a page printer to the UPS.

- In a case a page printer is connected to the UPS, the amount of output current often exceeds the current output capacity of the UPS in the commercial power operating mode, and that may lead to the UPS to put out a feed power as it is (bypass mode).
 - The peak current of the page printer is large so that it may be detected as an overcurrent.
-

Do not perform a withstand voltage test.

- The power input circuit has a built-in surge absorber element. A withstand voltage test may break it.
 - When performing an insulation resistance test, select the 250 VDC range.
-

Notes

Recycling and Discarding the Battery

- The UPS has a lead acid battery. The battery is recyclable, and precious resource. We need your cooperation in recycling the old batteries; the batteries you replace with a new battery, and the batteries you used to discard.
- For further information on recycling and/or discarding of batteries and UPS, please contact us;_____.



Installation and storage places

- Do not install or store the UPS in a place exposed to direct sunlight.
The rise of temperature may cause the battery to deteriorate and become unusable.
-

Explanations

Usual operating method

- You may keep the UPS running without making a stop, or you may turn off the UPS at each time when the devices connected the UPS is turn off.
You can choose either of two ways at your convenience.
 - Putting the UPS to a wall outlet (commercial power) starts charging the battery.
-

Terminating the backup mode

- In a case where power failure continues longer, the battery keeps its discharging and finally the UPS stops sending power. Before that, turn off your computer in the usual manner (including data backup).
-

Reboot

- If the battery discharges completely during a power failure, the UPS stops. After the recovery from a failure of the power supply (for example, power failure), the UPS automatically restarts and starts to feed power. If you do not want to run the devices connected to the UPS, keep turning the devices off.
 - The UPS monitoring software permits to disable automatic restart.
-

Scheduled operating mode through the UPS monitoring software

- When performing scheduled operating mode in which the UPS is turned off and the commercial power is cut off by using a circuit breaker at the same time, specify a less than 3 months shutdown. In a case that you specify the shutdown longer than 3 months, the internal timer will be reset and the scheduled operating mode will not work.

Notice that a shutdown should reduce to approximately half where the battery is dead.

In a case where a shutdown exceeds 3 months, the UPS starts to feed commercial power and you can get the UPS running by pressing the Start switch. However, if the battery is already dead, you may not be able to start the UPS. Then replace the battery according to "6-2 Replacing the battery" on page 33.

Installing a rack

- For safety installation, placing a rail or steel plate is recommended to support the weight of the USP.
 - The weight of the UPS

BU100XR2: 19kg	BU200XR2: 12kg (main unit)
MB100XR2: 26kg (add-on battery unit)	MB200XR2: 26kg (battery unit)
 - Place the UPS on the lowest part of rack. When connecting the battery unit and/or adding another battery unit, be sure to place the battery unit on the lower part of main unit.
-

1. Preparation

1-1 Unpacking the UPS



Cautions

Unpack and carry this product bearing the weight in mind. Place and run the UPS on a structurally sound base.



● Toppling and dropping may cause injury.

● The weight of the backup UPS

BU100XR2: 19kg

MB100XR2: 26kg (add-on battery unit)

BR200XR2: 12kg (main unit)

MB200XR2: 26kg (battery unit)

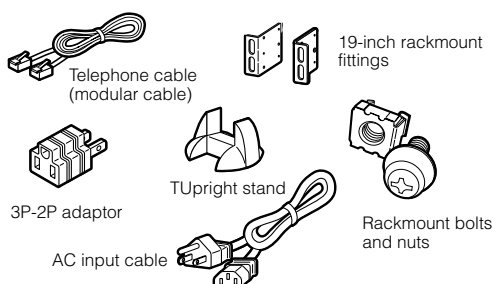
Care must be taken on unpacking of BU100XR2 as the built-in battery leans the center of gravity of BU100XR2 to one side.

1-2 Checking the accessories

If you should notice defects or anything wrong, please contact your distributor at once.

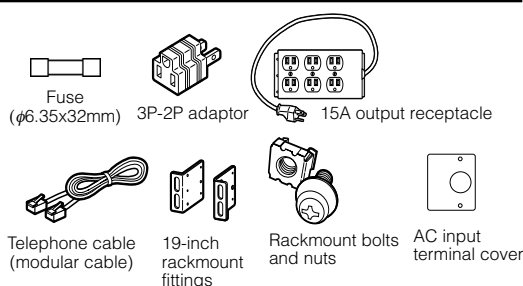
BU100XR2

1. Instruction Manual (English and Japanese versions)	1 each
2. Telephone cable (modular cable)	1
3. Warranty card	1
4. User registration card	1
5. 3P-2P adaptor	1
6. Upright stand	2
7. AC input cable	1
8. 19-inch rackmount fittings (6 screws)	2
9. Rackmount bolts and nuts	4 each
10. "Identification of operating condition" label	1



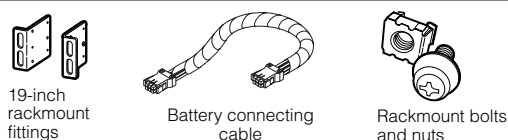
BU200XR2 (main unit)

1. Instruction Manual (English and Japanese versions)	1 each
2. Telephone cable (modular cable)	1
3. Warranty card	1
4. User registration card	1
5. 3P-2P adaptor	1
6. 15A output receptacle	1
7. 19-inch rackmount fittings (6 screws)	2 each
8. Rackmount bolts and nuts	4 each
9. "Identification of operating condition" label	1
10. Fuse (for Output 20A)	1
11. AC input terminal cover	1



MB200XR2 (battery unit)

1. Instruction Manual (English and Japanese versions)	1 each
2. Battery connecting cable	1
3. 19-inch rackmount fittings (6 screws)	2
4. Rackmount bolts and nuts	4 each



UPS monitoring software

(Attached to the BU100XR2/BU200XR2)

1. Instruction Manual	1
2. Installation CD-ROM	1
3. Connecting cable (9-pin serial cable)	1
4. User registration card	1



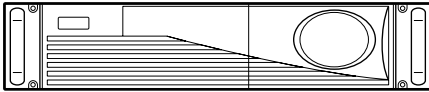
1-3 Exterior features

This section shows the external parts of the UPS.

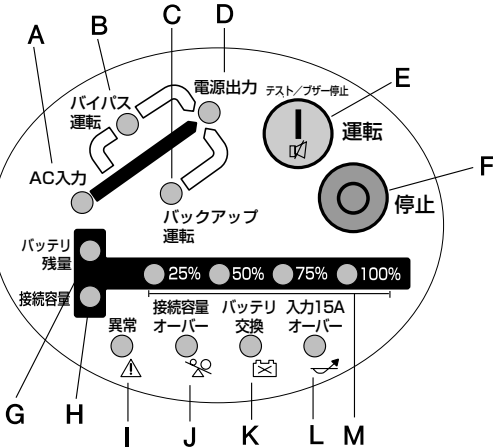
For information on the function of each part, see "2. Installation and connection" on page 9 and "3. Operating the UPS" on page 24.

BU100XR2/BU200XR2

● (Main unit) front view



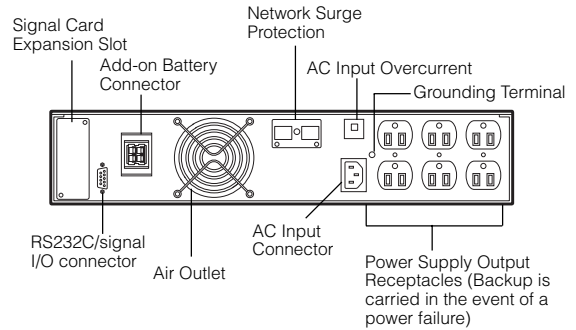
[Enlarged view of the display]



- A. AC Input Lamp
- B. Bypass Mode Lamp
- C. Backup Mode Lamp
- D. Power Supply Output Lamp
- E. Start Switch
- F. Stop Switch
- G. Battery Indicator
- H. Connection Capacity Lamp

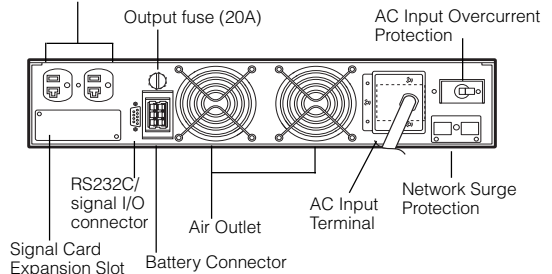
- I. Error Lamp
- J. Connection Capacity Exceeded Lamp
- K. Battery Replacement Lamp
- L. Input 15A Exceeded Lamp (BU200XR2 only)
- M. Connection Capacity/Battery Level Meter

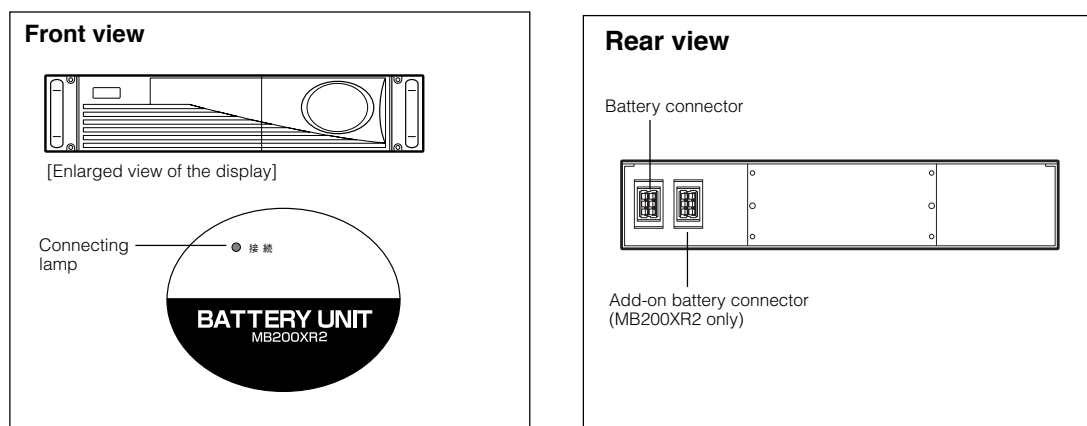
● BU100XR2 rear view



● BU200XR2 rear view

Power Supply Output Receptacles (Backup is carried in the event of a power failure)



MB200XR2 (battery unit)/MB100XR2 (Add-on battery unit)**1-4 Explanation of symbol used on unit**

Symbol	Description
	Start the UPS.
	Stop the UPS.
	Suspend a beep.
	Expanding battery unit connecting to the UPS. (For BU100XS only.)
	UPS has Error.
	Connected Overload. Excess output capacity by connected devices.
	Batteries in end of useful life, necessary to replace the batteries.
	AC input current over 15A.
	AC input / output power supplied.
	Indicates earth ground.

2. Installation and connection

2-1 Precautions and notes on installation and connection

Precautions and notes on installation and connection are given below. Be sure to read them for correct use.



Cautions (Compulsory (do's))

Unpack and carry the UPS bearing the weight in mind. Place and run the UPS on a structurally sound base.



- Toppling and dropping may cause injury.
- The weight of the UPS

BU100XR2: 19kg

BR200XR2: 12kg (main unit)

MB100XR2: 26kg (add-on battery unit)

MB200XR2: 26kg (battery unit)

Keep packing materials including plastic bags and films out of the reach of children



- When children swallow or put their head into the packing material, it may bring about the danger of suffocation.

Provide secure grounding



- Earth the ground terminals of the UPS and devices connected to the UPS. (See "2. Installation and connection" on page 12)

You may receive an electric shock in the event of trouble or power failure.

When both the UPS and devices are not grounded and touch both, you may receive an electric shock.

- When you use a 3-pin to 2-pin adaptor for an AC Input Plug, be sure to perform grounding before putting the AC Input Plug in a wall outlet (commercial power). On the other hand, be sure to perform disconnecting a grounding terminal after removing the AC Input Plug from a wall outlet (commercial power).
- Connect the UPS grounding terminal to a grounded-type wall outlet (commercial power) to make working the Power Line Surge Protection and the Network Line Surge Protection as intended.

Plug the UPS in a wall outlet (commercial power) with a current capacity larger than the maximum input current of the UPS.



- Otherwise, the power cord may be heated.
- For the device that requires power equivalent to the current capacity of the UPS or larger, BU100XR2 feeds 10.2A while BU200XR2 feeds 20A.

Be sure to put the AC Input Plug of the UPS in a wall outlet (commercial power) of 100VAC (50/60Hz).



- Putting it in a wall outlet (commercial power) of a different voltage may cause a fire.
- The UPS may fail.

Be sure to use supplied mounting screws.



- Other screws rather than supplied screws may cause dropping due to insufficient strength.

When you want to install your UPS horizontally, secure the supplied rubber seats in the four corners of the underside of the UPS.



- Toppling and/or dropping may occur and cause injury.



Cautions (Prohibition (don'ts))

Do not obstruct the air inlets and outlets on the upper and rear sides of the UPS.



Do not place the UPS in an enclosed space or put a cover the UPS.

- Doing so may lead to an abnormal overheat or fire.
- Temperature will increase inside the UPS and may cause a failure of the UPS and battery deterioration.
- Install the UPS 5cm away from the wall or further.

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



- An battery deterioration will occur rapidly and may cause a fire.
- Doing so may cause a failure or malfunction of the UPS.

Do not install or store the UPS in the places as listed below.



- The humidity is lower than 10%. The humidity is higher than 85%. An enclosed space such as a cabinet with no crevice. Near flammable gas and/or corrosive gas. Outdoors.
- Doing so may cause a fire.

Do not connect devices that exceed the output capacity of the UPS.



You can add extra devices with a plug strip. Note that the plug strip does not permit to plug in the device, which exceeds the current capacity of the plug strip.

- The UPS may detect overload and stop the output.
- The plug strip cord may heat up and could lead to a fire.

Do not install the UPS in the other orientations.



Do not install the UPS on a structurally unsound base.

- See "2-2 Installing" on page 12.
- Toppling and dropping may cause injury.

Notes

For safety installation, placing a rail or steel plate is recommended to support the weight of the USP.

- The weight of the UPS

BU100XR2: 19kg	BU200XR2: 12kg (main unit)
MB100XR2: 26kg (add-on battery unit)	MB200XR2: 26kg (battery unit)

Place the UPS on the lowest part of rack.

- When connecting the battery unit and/or adding another battery unit, be sure to place the battery unit on the lower part of main unit.

Do not give a short between the output lines of the UPS, as well as a ground fault between the output lines and the ground.

- The UPS may fail.

Do not put the AC Input Plug of the UPS in the Power Supply Output Receptacle of the UPS.

- The UPS may fail.

Do not connect a page printer to the UPS.

- In a case a page printer is connected to the UPS, the amount of output current often exceeds the current output capacity of the UPS in the commercial power operating mode, and that may lead to the UPS to put out a feed power as it is (bypass mode).
- The peak current of the page printer is large so that it may be detected as an overcurrent.

2-2 Installation

The UPS permits the following installing methods according to its surroundings.

1. Rackmount installation
2. Stationary installation

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



Cautions

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



● Dropping may cause injury.

● The weight of the UPS

BU100XR2: 19kg

BU200XR2: 12kg (main unit)

MB100XR2: 26kg (add-on battery unit)

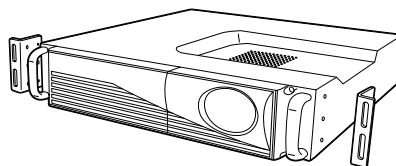
MB200XR2: 26kg (battery unit)

Do not install the UPS alone but ask your colleagues for help.

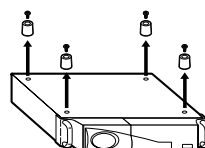


● Dropping may cause injury.

- (1) Mount supplied 19-inch rackmount fittings on both sides of the UPS with 6 screws (M4 X 6mm steel countersunk screws).



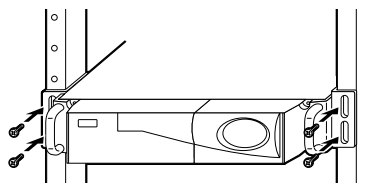
- (2) Unscrew the rubber seats counterclockwise installed in the four corners of the underside and remove them all.



- (3) • **The installation of the UPS on 19-inch rack.**
 - a. Remove the supplied rackmount screws (M5 X 15cm steel pan head screws).
 - b. Screw the UPS to the rack keeping it in a horizontal position. Exercise care to avoid creating clearance between the fittings and rack.

• **The installation of the UPS on a server rack**

- a. Remove the secured rackmount screws (M5 X 15cm steel pan head screws).
- b. Install rackmount nut on the rack.
- c. Screw the UPS to the rack keeping it in a horizontal position. Exercise care to avoid creating clearance between the fittings and rack.



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

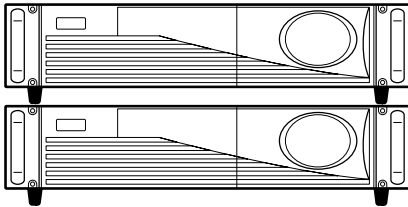
2. Stationary installation

The UPS permits the following positions shown in the illustrations only.

● Horizontal position

Place the UPS with the factory-mounted rubber seats side down. (Mounting screws: M4 X 6mm)

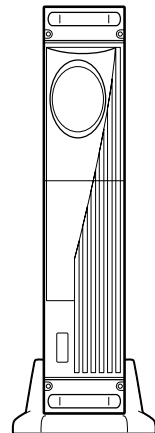
Horizontal position



* When connecting the battery and/or adding another battery, be sure to place the battery below

Upright position

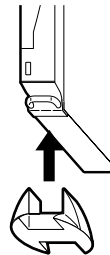
- * When you install the UPS in the upright position, be sure to install the upright stand on the left side of the UPS. (To position heavy components on the lower part of the UPS)
- * An add-on battery unit does not permit the upright position.



● Upright position (BU100XR2 only)

Install the supplied upright stand to the UPS.

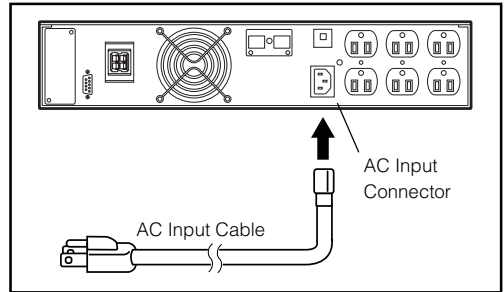
Great care should be taken to install upright stand on the left side of the UPS.



2-3 Connecting and modifying AC input cable

● BU100XR2

Connect "AC Input Cable" to "AC Input Connector" of BU100XR2.



● BU200XR2

1. AC Input Cable modification (In a case where input current exceeds 15A)

In a case where input current exceeds 15A ("Input 15A Exceeded" LED on the front panel will light up), pull out the AC Input Cable from BU200XR2. Next, contact an electrician (a qualified electrician; Type II or higher) to lay the AC Input Cable directly to a power switchboard.

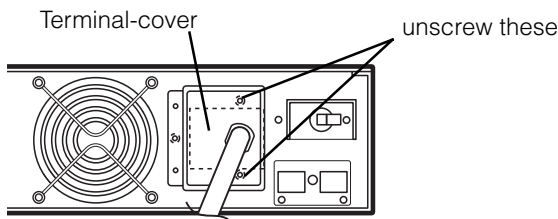
- The current capacity must be over 20A. (a cable of 3.5mm² or larger nominal cross section area is recommended)
- Insert 100AVC cable between L and N of "AC Input Terminal." Connect the ground cable to G of "AC Input Terminal."
- Requirement for Terminal Block

Temperature rating of wire intended to be used for connection of unit	Copper Conductors Only	Tightening torque
Min.60°C	Use No.12 AWG 60°C or 75°C copper wire	Approx 13.8 Lb-In

The wire size based on the ampacities given in the National Electrical Code, ANSI/NFPA 70-1993, and the derating factor described in Underwriters Laboratories Inc., Standard for Safety UL1778-1994.

- AC Input Cable Replacement

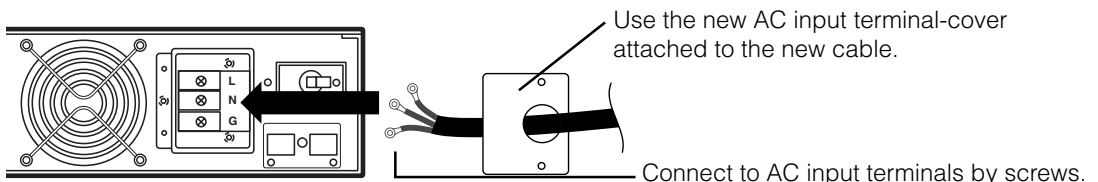
- (1) Remove the terminal-cover at AC input. (Two screws)



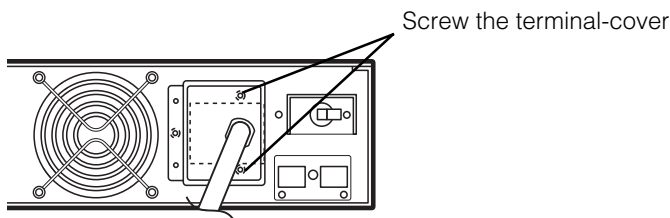
- (2) Remove screws at terminals (L, N, G) connecting the cable to the terminals and remove the old AC input cable.

- (3) Set the attached new AC input terminal-cover to the new AC input cable.

- (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.



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



2. How to calculate an input current roughly

You can calculate an input current roughly before turning on the UPS.

- Calculate the total electric energy (VA) of the devices linked to the UPS.

Get volt-ampere (VA) of the devices connected to BU200XR2. You may refer to their rating plate, specification sheet, and instruction manual. Finally sum the amount of VA

In a case where VA is described as W (watt), perform mathematical calculations; $W \div 0.6 = \text{VA}$.

In a case where VA is described as A (ampere), perform mathematical calculations; $A \times 100 = \text{VA}$.

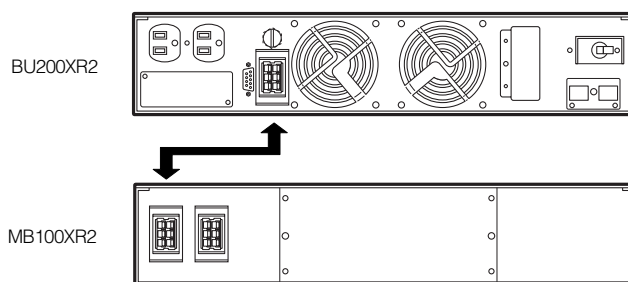
- In the event that resultant total volt-ampere exceeds 1500VA, change the AC Input Cable.

Explanation

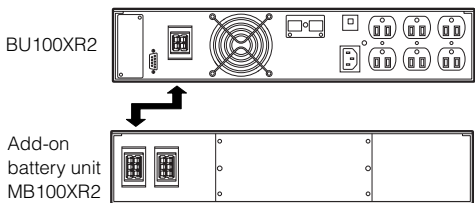
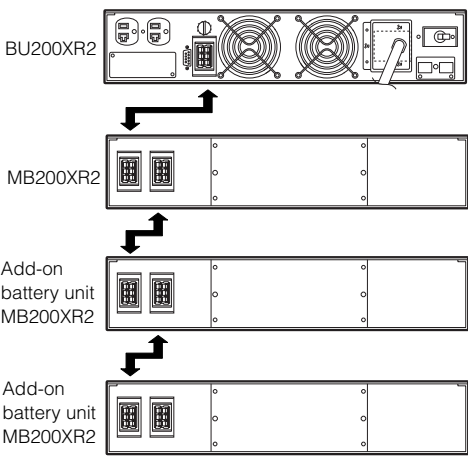
When reconnect AC Input Cable to BU200XR2, align "L,N,G" printed on the right side of AC Input Terminal, which is on the rear side of BU200XR2, with "L,N,G" printed on AC Input Cable.

2-4 Connecting a battery unit (BU200XR2)

When connecting "Battery Connecting Cable" included with the battery unit between "Battery Connector" of the main unit and "Battery Connector" of the battery unit, it may make a spark, however, that is no problem. After putting "AC Input" plug in, the connection lamp on the front panel of the battery unit will light up.

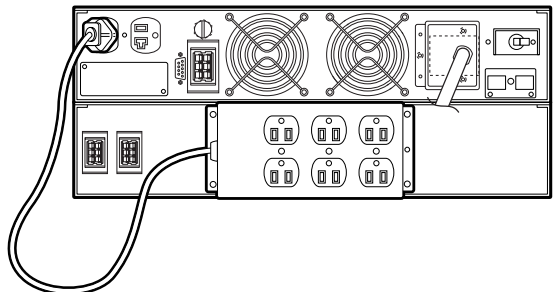


2-5 Adding a battery unit (BU100XR2, BU200XR2)

●BU100XR2	●BU200XR2
<p>Connect a "Battery Connecting Cable" included with the battery unit between the "Battery Add-on Connector" of BU100XR2 and the "Battery Connector" of the battery unit. After putting an "AC Input" plug in, a "Connection" lamp on the front panel of the battery unit will light up. BU100XR2 permits only one ad-on battery unit.</p> <div data-bbox="137 560 617 743"><p>A backup time is 20 minutes in a case where a 1KVA/700W device is connected. (ambient temperature: 20°C, battery initial value) A discharged battery requires twenty-four hours to recharge fully.</p></div> <div data-bbox="130 850 603 1052"></div> <p>* For further information, see the instruction manual of Battery Unit.</p>	<p>Connect a "Battery Connecting Cable" included with the battery unit between the "Battery Add-on Connector" of BU200XR2 and the "Battery Connector" of an add-on battery unit. After putting an "AC Input" plug in, a "Connection" lamp on the front panel of the battery unit will light up. BU200XR2 permits up to two add-on battery units.</p> <div data-bbox="686 560 1234 811"><p>The backup time is 10 minutes in a case where a 2KVA/1.4KW device is connected with one add-on battery, and 20 minutes with two add-on batteries. (ambient temperature: 20°C, battery initial value) A discharged battery requires twelve hours to recharge fully in the case of one add-on battery, while it requires twenty-four hours in the case of two add-on batteries.</p></div> <div data-bbox="686 850 1152 1304"></div> <p>* For further information, see the instruction manual of Battery Unit.</p>

2-6 Adding the UPS output receptacle (BU200XR2)

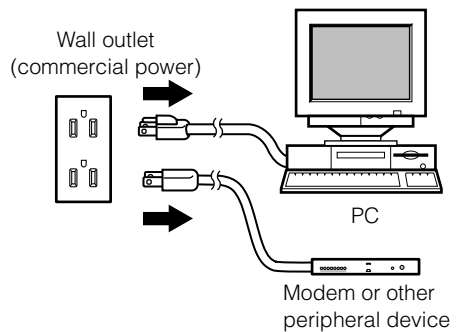
When two UPS output receptacles are not enough and an additional receptacle is needed, simply connect a supplied 15A output receptacle to the "power supply output receptacle of the main unit." Secure the 15A output receptacle on the rear side of the battery unit with screws (M4 X 6mm, inch-thread screws)



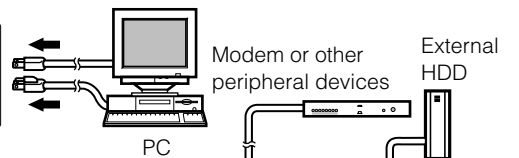
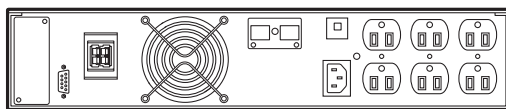
2-7 Connecting method of devices

- (1) Remove the AC Input Plugs of all devices, which you want to backup such as your PC and modems, from a wall outlet (commercial power).
- (2) Put devices you want to backup in the Power Supply Output Receptacles of the UPS.

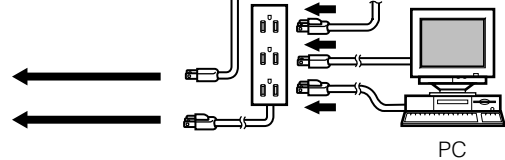
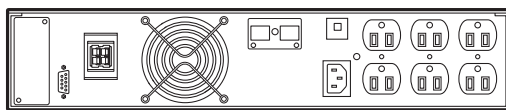
* If you need more output receptacles other than those of the UPS, purchase a plug strip separately and add an extra output receptacle.



<Example of connection 1>

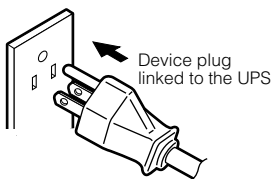


<Example of connection 2>

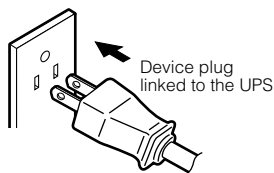


* Even if the input plug of a device you want to put is 2-pin type, you can plug it directly in the Power Supply Output Receptacle of the UPS, however in a case of the input plug is 2-pin type with the attached grounding wire, connect the grounding wire to the Grounding Terminal of the UPS.

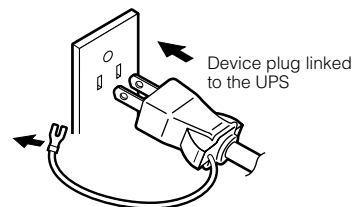
Connect it directly.



Connect it directly.



Connect it directly.



Connect the grounding wire to the Grounding Terminal of the UPS.

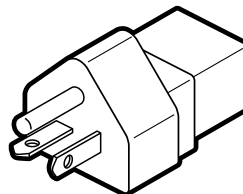
2. Installation and connection

● In the case of connecting a device that exceeds 15A of an input current (BU200XR2)

When you connect a device that exceeds 15A of an input current, make sure that the input plug of the device is 20A type before plugging it in the UPS.

In the case where the plug of the device is 15A type, contact an electrician (a qualified electrician; Type II or higher) and instruct him or her to replace the plug of the device.

A shape of plugs

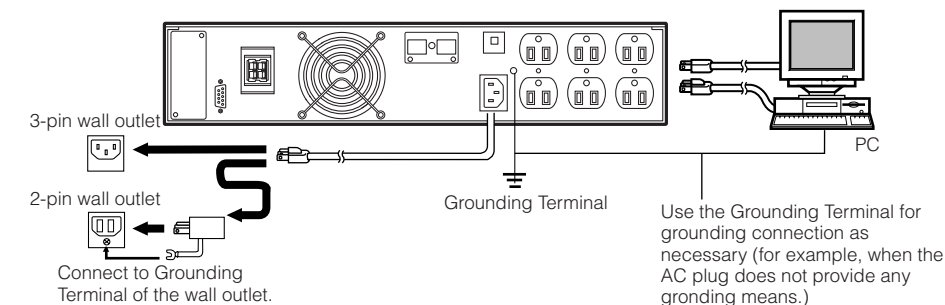


- (3) Connect between the UPS and the surge protection circuit.
(See "7. Using the Network Line Surge Protection Function" on page 41.)

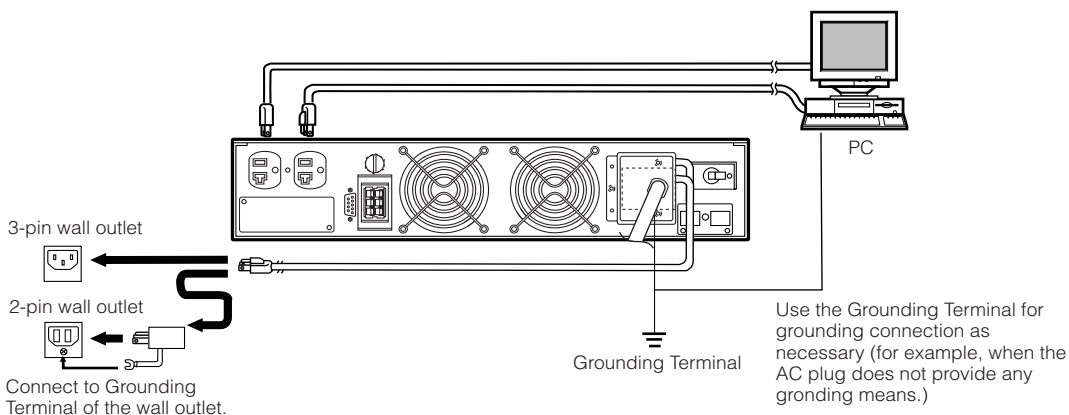
*** If you do not use the Network Line Surge Protection Function, this step is not required.**

- (4) When the installation and connection is complete, put the AC Input Plug of the UPS in a wall outlet (commercial power). Turn on the AC Input Overcurrent Protection of BU200XR2.

● BU100XR2



● BU100XR2



- 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 you to charge the UPS before using it.
After you put the AC Input Plug of the UPS in a wall outlet (commercial power), a battery charge is automatically started and it is fully charged for 8 hours or less.

- (5) After the completion of putting the "AC Input Plug" of the UPS, proceed to "3. Operating UPS."

2-8 Checking the operation



Cautions

If the input plug is removed while the UPS is running, never touch its metal part.

- Doing so may cause an electric shock.
- A leak current of the UPS is less than the value of the safety standard (leak current: 1mA). However, A leak current increases due to the devices linked to the UPS. So never touch the metal part of the input plug.



Prior to use of the UPS, follow the steps below to check whether backup function works.
(This operational check of removing the "AC Input Plug" from the wall outlet is carried out on the assumption that power failure would occur.)

- (1) Connect your PC and other devices to the UPS, and then put the AC Input Plug of the UPS in a wall outlet (commercial power).
- (2) Press the Start switch to get the UPS running.
Bring all devices linked to the UPS into operation at the start of the operation.
(Including devices connected to the AC outlet of your PC.)

Operate the devices in a way that power to the devices may be off any time.

- (3) Under this condition, check the indicator lamps of the UPS.
Does the display of your UPS look exactly like the right figure?

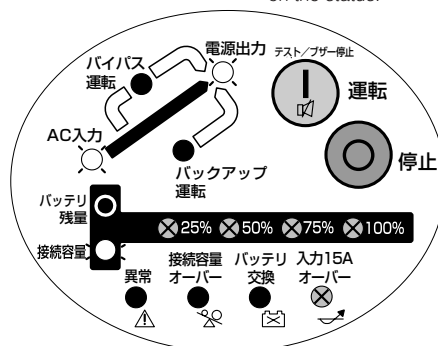
Yes

→ The operation is normal.
Proceed to (4).

No

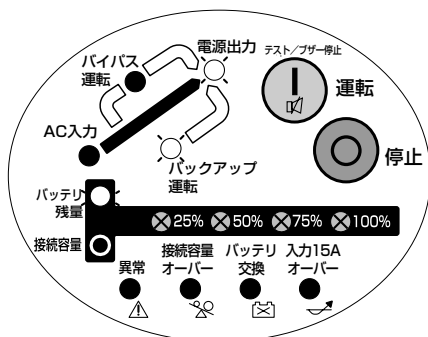
→ The operation is abnormal
The panel looks like either of them showed in "C. Failure (display and beep when a failure occurs in the UPS)" of "3-3 Beep and display" on page 28. Take necessary measures according to the troubleshooting and then proceed to (4).

☉ Light is on ● Light is off ⊗ Light is on or off depending on the status.



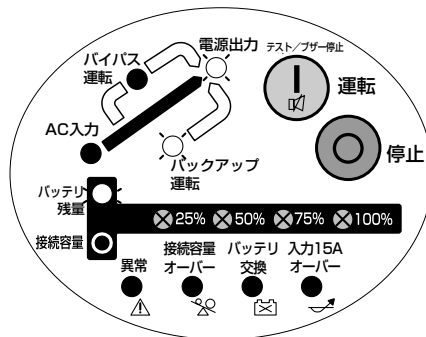
2. Installation and connection

- (4) Remove the AC Input Plug of the UPS from a wall outlet (commercial power) to bring it into backup status. Under this condition, check the indicating lamp and hear beep from the UPS. Which figure does the display of your USP show below?



Beep

A beep every 4 seconds



Beep

A beep every 1 second

Yes

→ The operation is normal.
Proceed to (5).

No

→ The operation is abnormal.

- If the display is either of them showed in "C. Display and beeper when a failure occurs in devices" of "3-4 Beep sound, and how to look at the display" on page 28, take necessary measures according to the troubleshooting and then go back to (4).
- In a case where there is no backup and both the UPS and devices linked to the UPS would stop, a weak charge state of the battery is suspected.
Put the AC Input Plug of the UPS in a wall outlet (commercial power), charge the battery for at least 8 hours, and then go back to (4).

◆ Despite efforts to the above two checks, and the trouble still remains, contact our custom support center at 0120-77-4717.

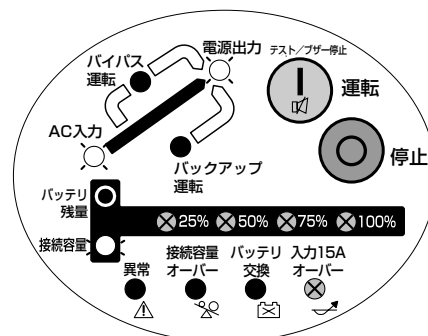
- (5) Put the AC Input Plug in a wall outlet (commercial power) again.

The Battery mode Lamp goes out, the AC Input Lamp goes on, and a beeper stops.

(The status is shown in the right figure.)

The operating checks are now complete.

Light is on or off depending on the status.



2-9 Charging the battery

When you put the AC Input Plug of the UPS in a wall outlet (commercial power), a battery charges automatically starts and the battery will be fully charged within 8 hours.

(A battery charges when the UPS is used or not)

- The UPS has been charged prior to shipment, however, the backup time may be shorter when using the UPS for the first time due to spontaneous discharge.
We recommend to charge the UPS before using it.

2-10 Measuring the backup time


After "2-8 Checking the operation" is complete, you can start an actual operation, however, we recommend measuring the actual backup time of the UPS in your surroundings before starting the initial operation. That gives you a guideline for the battery check.

See also "5-1 Measuring method of the backup time" on page 32.

3. Operating the UPS

3-1 Precautions and notes on operation

During the operation, follow the do's and don'ts below.




Cautions (use)

In a case where the Battery Replacement Lamp comes on or the backup time becomes shorter than the required backup time, replace with a new battery pack while the UPS is running, or stop the UPS and discard the old battery pack.

- The continuous operation of the UPS may cause a fire.
- For further information on how to inspect the battery, see "6. Maintenance and inspection" on page 33.


Ambient temperature	Estimated life expectancy
20°C	4 to 5 years
30°C	2 to 2.5 years

* The left table shows the estimated life expectancy of a battery pack on the ground that the battery is used in the usual way. They are not the warranty period.




In case where you notice abnormal sound or smell, smoke, or liquid from the inside of the UPS, press the Stop switch of the UPS immediately and remove the AC Input Plug from a wall outlet (commercial power).

- A continuous operation under the abnormal conditions may cause a leakage of current or fire.
- If you notice the abnormal conditions, never operate the UPS and contact the distributor from which you purchased your UPS or us for inspection and repair.
- Your UPS must permit to remove AC Input Plug from a wall outlet (commercial power) instantly at the onset of a failure.




Before maintaining devices connected to the UPS, turn off the UPS and remove the AC Input Plug from a wall outlet (commercial power).

- Even if you remove the AC Input Plug during the operation of the UPS, the backup function of the UPS keeps feeding power through the power supply output receptacle of the UPS.
- In a case where the scheduled operation is ON and the AC Input Plug of the UPS is put in a wall outlet (commercial power), the UPS starts feeding power at the starting time of the scheduled operation.




When the input plug accidentally become removed while the UPS is running, never touch the metal part of the input plug.

- Doing so may cause an electric shock.
- A leak current of the UPS is less than the value of safety standard (leak current: 1mA) however, the leak current may increase due to the devices connected. Therefore, never touch the metal part of the input plug.




Do not place things on the UPS or do not drop metal things into the UPS.

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




Do not place the UPS in an enclosed space or put a cover over the UPS.

- Doing so may lead to an abnormal overhear or fire.



Do not wet or spill water on the UPS

- Doing so may cause an electric shock or fire.





Cautions (use)

Do not insert a metal thing into the Power Supply Output receptacle of the UPS.



- Doing so may cause an electric shock.

Do not insert metal things into the battery connector or add-on battery connector.



- Doing so may cause an electric shock.

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



- The battery becomes weak rapidly, and may lead to a fire.
- Doing so may cause a failure or malfunction of the battery.

Notes

Before cutting out commercial power by turning off the breaker or disconnecting the AC Input Plug, stop the UPS.

If you cannot turn off the UPS, it is recommended to automatically stop it in the minimum backup time using the UPS monitoring software.

- When you stop commercial power, the Battery mode starts. If you repeat charging and discharging in a way in which you stop commercial power and discharge the battery completely, the life of the battery decreases extremely.

The less the amount of charging and discharging is, the less the affect on the life becomes.

3-2 Start and stop procedures

● Start procedure

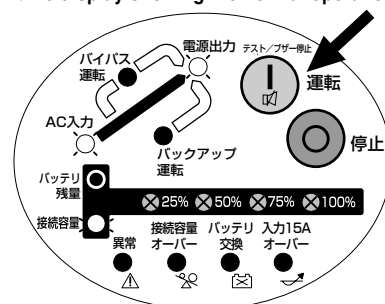
1. Put the AC Input Plug of the UPS in a wall outlet (commercial power).
After approximately 8 seconds, the AC Input lamp and Battery Indicator lamp goes on and the battery is being charged.
2. Press and hold the Start switch of the UPS for at least 0.5 second.
A beeper sounds for 0.5 second, and the Bypass Mode Lamp goes on. During that time, the self-test is performed (approximately 3 seconds). Then the Power Supply Output Lamp go on and supplying power from the Power Supply Output Receptacle of the UPS starts. The "Battery indicator" lamp goes on, and "Level Meter" displays the power consumption in percent of the devices linked to the UPS.

BU100XR2: 1KVA / 700W as 100%.

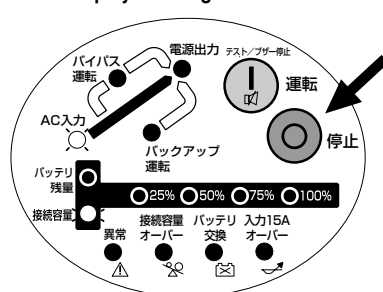
BU200XR2: Displayed in 4 levels, taking 2KVA / 1.4KW as 100%.

☉ Light is on ● Light is off ⊗ Light is on or off depending on the status.

<The display showing the normal operation>



<The display showing the state of the stop.>



* Before starting the initial operation, measure the actual backup time of the UPS in your surroundings. That gives you a guideline for the battery check.
See also "5-1 Measuring method of the backup time" on page 32.

3-3 Beep and display

A. Normal (Normal operation status)

No.	Display	Beep	Output	Charge	Description
1		None	Stop	Stop	<p>Status: Operation is interrupted due to removal of the AC Input Plug or abnormal input power supply. If the input voltage is 65 to 80V or 115 to 138V, the AC Input lamp blinks.</p> <p>Remedy: Put the AC Input Plug.</p>
2		None	Stop	ON	<p>The AC Input Plug is put, and the input power supply is normal. Operation is stopped.</p> <p>Remedy: None</p>
3		None	ON	ON	<p>Status: The AC Input Plug is put, and the input power supply is normal. The amount of charge remaining is indicated on the level meter.</p> <p>Remedy: None</p>




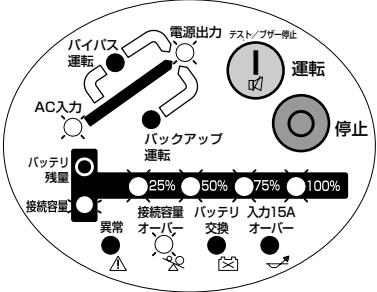
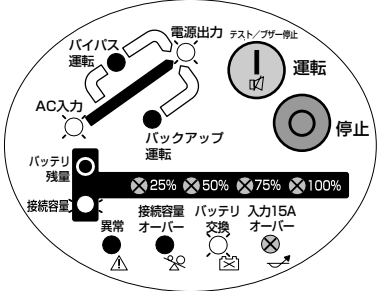
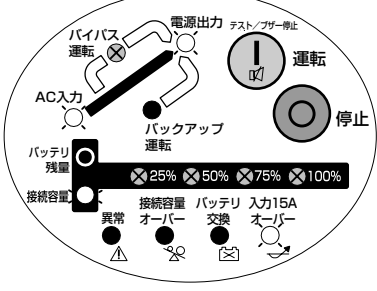
3. Operating the UPS

B. Failure (display and beep when a power failure and/or irregularities in the mains supply occurs)

No.	Display	Beep	Output	Charge	Description
1		Continuous Every 4 seconds	ON	Stop (discharging)	<p>Status:</p> <p>Because a power failure occurs or input voltage is over 115V, or under 80V, power is being supplied to devices connected to the UPS in the battery mode. The amount of charge remaining is displayed on the level meter.</p> <p>In the case where an input voltage is 65 to 80V or 115 to 138V, the AC Input Lamp blinks.</p> <p>Remedy:</p> <p>To avoid a dead battery, follow the completion of operation of devices linked to the UPS and turn them off.</p>
2		Continuous Every 1 second	ON	Stop (discharging)	<p>Status:</p> <p>Power is being supplied to devices connected to the UPS in battery mode. As the amount of charge remaining is getting exhausted, an output will stop soon. The amount of charge remaining is displayed on the level meter.</p> <p>Remedy:</p> <p>To avoid a dead battery, follow the completion of operation of devices linked to the UPS and turn them off.</p>

C. Failure (display and beep when a failure occurs in a device)

No.	Display	Beep	Output	Charge	Description
1		Continuous	ON or stop	ON or stop	<p>Status:</p> <p>The UPS stops due to a failure of the internal circuit of the UPS, short of the output, or abnormal inside temperature.</p> <p>Remedy:</p> <ul style="list-style-type: none"> ● Turn off the UPS and devices connected to the UPS. Disconnect all devices connected to the UPS and press the Start switch again. In a case where the status of A-3 on page 27 occurs, a short in devices connected to the UPS is suspected. Check the devices. ● If the same display appears after taking the above countermeasures, stop the UPS for approximately 1 hour and then press the Start switch again. In a case the status of A-3 on page 27 occurs, the temperature inside the UPS must have increased. Check whether ambient temperature is below 40°C and a vent is not obstructed. ◆ Despite efforts to the above two checks, and the trouble still remains, a failure of the internal circuit is suspected. Contact us;_____.

No.	Display	Beep	Output	Charge	Description
2	<p>  Light is on  Light is off  Light is on or off depending on the status. </p> 	Continuous	ON	ON	<p>Status:</p> <p>The rated output capacity is exceeded due to too many devices are linked to the UPS. In a case where this status continues for the following time or longer, commercial power is supplied in the bypass mode.</p> <p>Amount of the current capacity 105% or more: 3 minutes</p> <p>Amount of the current capacity 125% or more: 30 seconds</p> <p>Amount of the current capacity 150% or more: within a fraction of a second</p> <p>Remedy:</p> <p>Reduce the devices linked to the UPS until the above display will turn off and shows the display as in A-3 on page 20.</p>
3		Continuous	ON	ON	<p>Status:</p> <p>Battery replacement is necessary.</p> <p>Remedy:</p> <ul style="list-style-type: none"> ● Charge the battery for at least 8 hours. (For information on the charge method, refer to "2-9 Charging the battery" on page 23.) After the completion of charging, check whether the battery mode is performed according to "2-8 Checking the operation" on page 21. <p>In a case where the UPS does no backup or the backup time became less than half of the initial value, replace the battery, which is in deteriorated condition.</p> <p>(For information on the procedure to replace the battery, refer to "6-2 Replacing the battery" on page 33.)</p> <p>Perform either pressing the Stop switch for at least 2 seconds to turn off the UPS, or carrying out the self-test after the replacement of the battery, and then the display will be turned off.</p> <p>In a case where you continue to use a weak battery, the battery mode will not work and an output will be stopped even if a power failure occurs.</p> <p>The proper battery mode requires the battery to be charged fully.</p>
4		None	ON	ON	<p>Status:</p> <p>An input current exceeds 15A. (BU200XR2 only)</p> <p>Remedy:</p> <ul style="list-style-type: none"> ● The UPS needs to connect directly to a power switchboard which feeds a current of 22A or larger. Carry out electrical wiring work according to "2-3 Connecting and Modifying AC Input Cable." at least 2 seconds to turn off the UPS, or carrying out the self-test after the replacement of the battery, and then the display will be turned off.

4. Functions of the UPS

4-1 Suspending a beep

You can suspend a beep by pressing and holding the Start switch of the UPS for at least 0.5 second while the beeper is sounding.

You can suspend a beep in the following conditions. When you press and hold the Start switch for at least 0.5 second again, the beeper restart sounding.

- During the backup mode operation (the Backup Mode lamp lights up)
- When a failure occurs in devices (the "Error" lamp lights up)
- When battery replacement is required (the "Battery Replacement" lamp lights up)

You cannot suspend the beep that exceed the current capacity.

Take necessary countermeasures according to "C. Failure (display and beep when a failure occurs in devices)" on page 28.

4-2 Testing the UPS (executing the self-diagnostic test)

Follow the procedures below to check whether replacing the battery installed in the UPS is necessary and/or whether the internal circuit is at fault.

- (1) Connect your PC and other devices to the UPS and then press the Start switch to get your UPS running.
- (2) Press and hold the Start switch of the UPS for at least 10 seconds.

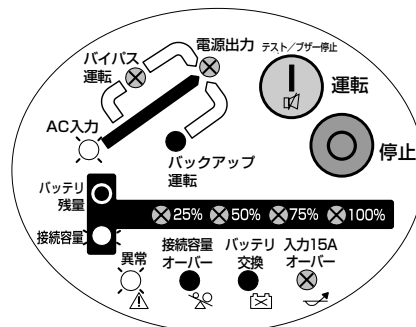
When you hear a beep sound, just release the start switch.

Your UPS enters in the backup mode.

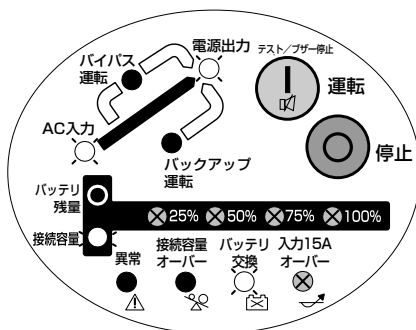
- (3) After the completion of the test, the UPS goes back to usual service conditions.
- (4) If the Error Lamp goes on and the beeper sounds, take necessary countermeasures according to "C. Failure (display and beep when a failure occurs in apparatus)" of "3-3 Beep and display" on page 26.
- (5) If the Battery Replacement Lamp goes on and a beep sounds, a battery needs replacing. Replace the battery according to "6-2 Replacing the battery" on page 33.

Light is on ● Light is off ⊗ Light is on or off depending on the status.

<Display when a device is at fault>



<Display when battery needs replacing>



*** You can also execute this test through the UPS monitoring software. For further information, refer to the online help of the UPS monitoring software.**

4-3 Description of the auto battery tests

This UPS provides automatic checking functions whether a battery needs replacing and/or the internal circuit is at fault. (You do not have to perform the tests by yourself.)

The tests are performed within 4 to 24 hours after the AC Input Plug is put in a wall outlet (commercial power) on the ground that the UPS continues in usual service conditions. The test will be subsequently repeated every 4 weeks.

In a case where you remove the AC Input Plug from a wall outlet (commercial power) while the UPS is turned off, the test period will be reset. When the UPS detects that the UPS is turned off, the battery needs replacing, or the UPS enters in the backup mode within 4 hours after starting the test due to irregularities in the mains supply, the test will not be performed.

In a case where you prefer to "disable the auto battery test," you can change the setting through the UPS monitoring software. For further information, refer to the online help of the UPS monitoring software. (The factory-shipped setting is "Enable the auto battery test.")

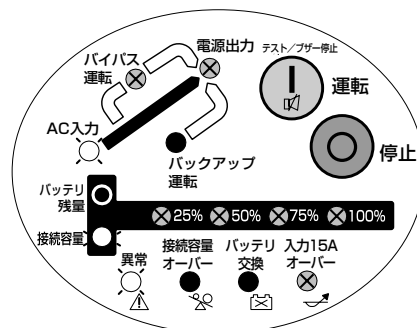
- (1) When the auto battery test starts, your UPS enters automatically into the battery mode. (No beep sounds.) After the completion of the battery replacement test, the UPS automatically goes back to usual service conditions.

- (2) If the Error Lamp goes on and beeper sounds, take necessary countermeasures according to "C. Failure (display and beep when a failure occurs in devices)" of "3-3 Beep and display" on page 27.

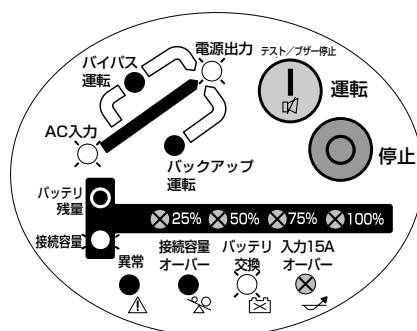
- (3) If the Battery Replacement Lamp goes on and beeper sounds, a battery needs replacing. Replace the battery according to "6-2 Replacing the battery" on page 33.

Light is on Light is off Light is on or off depending on the status.

<Display when a device is at fault>



<Display when battery needs replacing>



Explanations

On the ground that the UPS is in usual service conditions, a self-test is performed automatically within 4 to 24 hours after the AC Input Plug is put in a wall outlet (commercial power).

In a case you turn off the UPS everyday, select the "Don't perform battery auto test" setting.

In a case you select "Perform battery auto test" setting, the estimated life expectancy of a battery pack will become shorter as the battery test is repeated everyday.

5. Measuring the backup time

5-1 Measuring method of the backup time



Cautions

When the input plug accidentally become removed while the UPS is running, never touch the metal part of the input plug.

- Doing so may cause an electric shock.
- A leak current of the UPS is less than the value of safety standard (leak current: 1mA) however, the leak current may increase due to the devices connected. Therefore, never touch the metal part of the input plug.



- (1) Put the AC Input Plug of the UPS in a wall outlet (commercial power) and change the battery for at least 8 hours.
(You may turn on the Start switch and get devices linked the UPS running.)
- (2) Turn on all devices connected the UPS.
(Including devices connected to the AC receptacle of your PC.)
- (3) Remove the AC Input Plug of the UPS and check a backup time.

*** The backup time you measure for the first time after purchase is the "initial value of the backup time."**

Initial value of the backup time: minutes seconds

5-2 Estimated backup time

The backup time varies depending on the capacity of devices connected to the UPS.

After calculating the total capacity of devices connected to the UPS, refer to the graph of the backup time to obtain an estimate initial value of the backup time.

- (1) Convert the total capacity (power consumption) of devices linked to the UPS to watts.
Check the unit of these devices connected to the UPS.

There are 3 units: VA, A, and W

Example 1) 100VAC, 50/60Hz, 145W

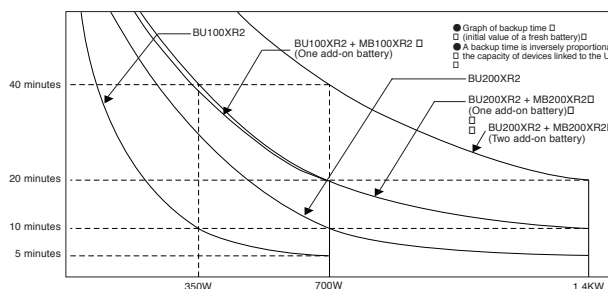
Example 2) 100VAC, 50/60Hz, 1.8A

Example 3) 100VAC, 50/60Hz, 150VA

For the devices with the units of VA and A, convert VA and A to W. See the right table for the conversion.

Unit	Value
VA	$\times 0.6 = W$
A	$\times 60 = W$

- (2) Sum up the values converted in W and obtain the total capacity of the devices connected to the UPS.
- (3) Obtain the initial value of the backup time for the total capacity of the devices connected to the UPS from the graph on the right.



6. Maintenance and inspection

6-1 Checking the battery

The sealed lead-acid battery mounted in the UPS has its own life. (The life of the battery varies depending on storage conditions, the surroundings and backup frequency.) As the battery life draws near, the deterioration takes place much faster. Check the battery regularly by yourself.

1. Battery life (replacing cycles)

Ambient temperature	Battery life	Replacing cycles
20°C	4 to 5 years	4 years after the date of the first use
30°C	2 to 2.5 years	2 years after the date of the first use

2. How to check the battery

Obtain the back-up time according to "5-1 Measuring method of the backup time" on page 32.
If the measured value is half of the "initial value of the backup time," the battery needs replacing.

3. A guideline and cycle of the battery checking (measuring the backup time)

Ambient temperature	Checking every 6 months	Checking every month
20°C	Up to 3 years after the date of purchase	Over 3 years after the date of purchase
30°C	Up to 1.5 years after the date of purchase	Over 1.5 years after the date of purchase

*** The battery deteriorates even under conditions of storage. The higher the temperature is, the shorter the life becomes.**

6-2 Replacing the battery

You can replace the battery of this UPS by yourself.

You can replace the battery mounted in the UPS even under usual service conditions (power is feeding). Of course you can also replace the battery while the UPS is off (no power is feeding). You can choose either of the methods for replacing at your convenience.

*** Do not perform a backup operation and turn off the UPS immediately in the cases where you replace the battery either under usual service conditions, or a power failure or other failures occur while the battery is not connected, the UPS.**

Warnings

An electric shock or short may occur











- Do not put your hand into the opening of the battery when replacing the battery.
- Do not insert a metal thing into the inside of the battery.




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

- Doing so may cause a burn and blindness. If the liquid gets in eyes or spills on your skin, wash them with clean water and see a doctor.

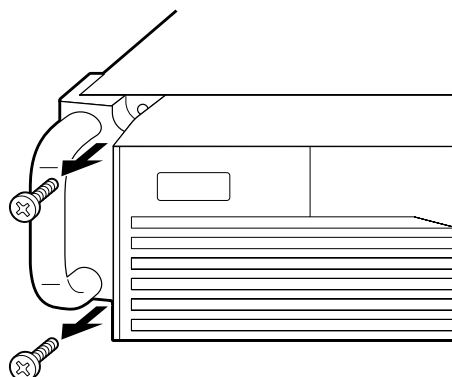


 Cautions	
Do not short the battery with metal things ● Doing so may cause a burn or fire. ● A dead battery keeps some current remaining.	
Do not toss a battery into the fire. Do not try to break a battery. ● The battery may explode or dilute sulfuric acid may leak.	
Do not use any batteries unless otherwise specified. ● Doing so may lead to a fire. ● Battery model: BP100XR	
Do not use a new battery and an old battery all together ● Dilute sulfuric acid may leak	
Do not drop the battery or do not give strong impact on it. ● Dilute sulfuric acid may leak.	
Do not replace the battery near the place where there is flammable gas. ● A spark may occur when connecting the battery, and lead to a fire.	
Replace a battery on a structurally sound base. ● Hold the battery securely with your both hands to avoid dropping. ● Not doing so may cause injury due to failing, burns, or liquid (acid) leakage.	
Do not carry the replaced battery pack upside down. ● If liquid (dilute sulfuric acid) leaks from the battery, there is a danger of burns or blindness.	
Do not disassemble or modify the battery. ● Doing so may cause a leakage of dilute sulfuric acid, which may cause blindness and burns.	

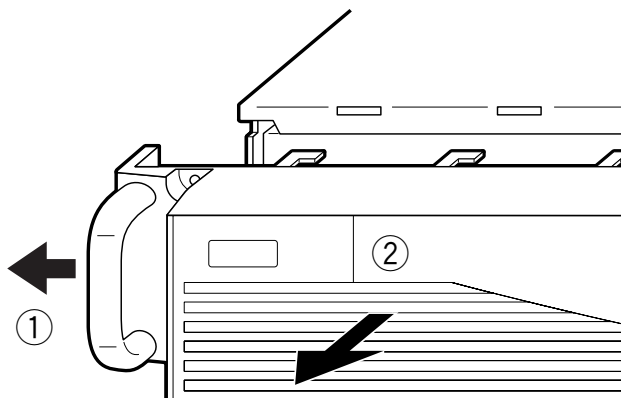
Notes	
The UPS mounts a lead acid battery. The lead acid battery is recyclable. ● Please recycle it when you replace it or discard the product you do not use any more.	 Pb

1. Procedures for the replacement of the BU100XR2 battery

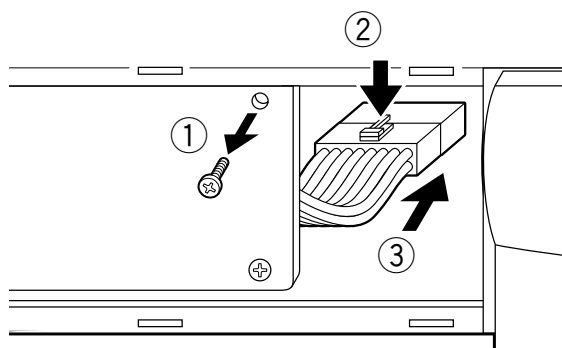
- 1-1** Unscrew 2 screws that hold the left side of the front panel to the UPS.



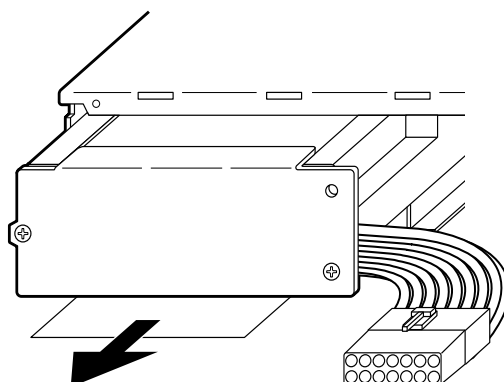
- 1-2** Hold the handgrip of the front panel and slide the panel to the left ①, and pull it toward you ② and remove.



- 1-3** Unscrew the screw counterclockwise at the right upper side of where the front panel was removed ①. Holding down the snap-on plug of the battery connecting cable ②, pull the battery cable toward you ③.

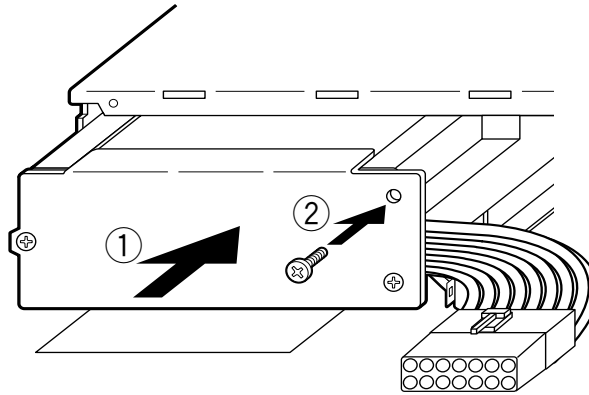


- 1-4** Hold the white pullout label at the bottom of the battery pack and gradually pull out the battery pack. **When you see a red tape stuck on the top of the battery pack, you can demount the battery by pulling it out 10cm further. Hold the battery securely with your both hands to avoid dropping.**

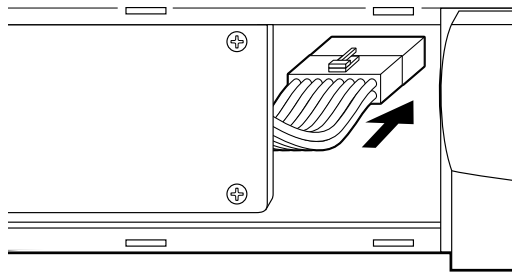


6. Maintenance and inspection

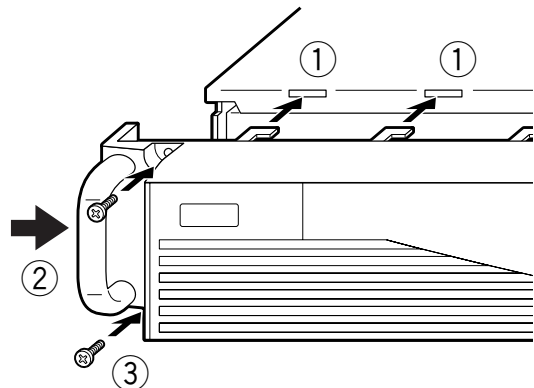
- 1-5** Insert a fresh battery into the UPS as far as it will go ①.
Secure clockwise the screw at the right upper side of the battery pack ②.
- Battery pack for replacement
Type: BP100XR



- 1-6** Put the battery connecting cable plug in the receptacle of the UPS until it snaps on.
A spark may occur but it does not indicate failure.



- 1-7** Hold and insert the lugs of front panel into the slots of the UPS ①, slide the front panel to the right ②, and secure two screws clockwise at the left side of the front panel.
- Write the replacement date on the label at the top of the UPS.
 - In a case where you use the UPS monitoring software, input the replacement date of the new battery.
 - After the replacement of the battery, press the Start switch for over 20 seconds, and carry out the self-diagnostic test at the time of replacement of the battery. You will not hear a beep for the first 10 seconds, and eventually you will hear the beep every 10 seconds. When the beep started to sound continuously, turn off the Start switch. That completes the replacement of the battery.



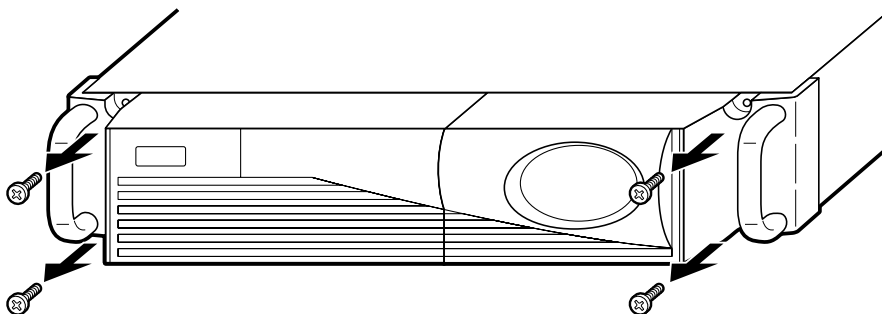
Note

Discard the battery after replacing.

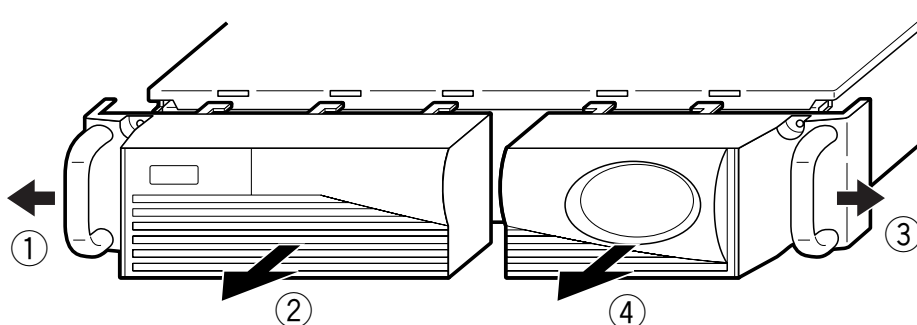
- * If you keep it for a long time, dilute sulfuric acid may leak from the old battery.
- * For information on discarding the battery, please contract us.

2. Procedures for the replacement of the BU200XR2 battery and add-on battery units: MB100XR2/MB200XR2.

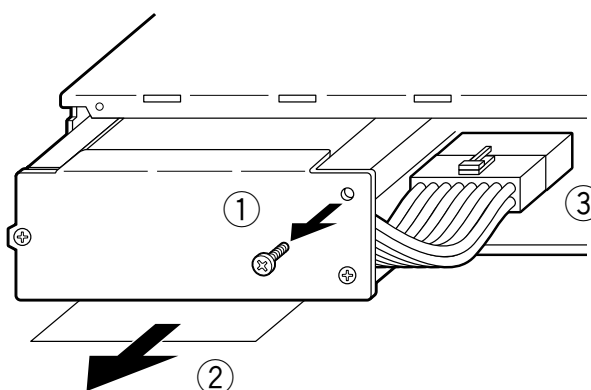
2-1 Unscrew 4 screws that hold both sides of the front panels to the battery unit.



2-2 Hold the handgrip of the left front panel and slide the left panel to the left ①, and pull it toward you ② and remove. In the same way, hold the handgrip of the right front panel and slide the right panel to the right ③, and pull it toward you ④. While holding snap-on cable connector attached to the panel, pull out the cable connector from the right front panel.



2-3 Unscrew the screw counterclockwise at the right upper side of the battery pack ①. Hold the white pullout label at the bottom of the battery pack and pull as far as you see a yellow tape stuck on the top of the battery pack ②. Unhook the battery connecting cable while holding the battery pack.

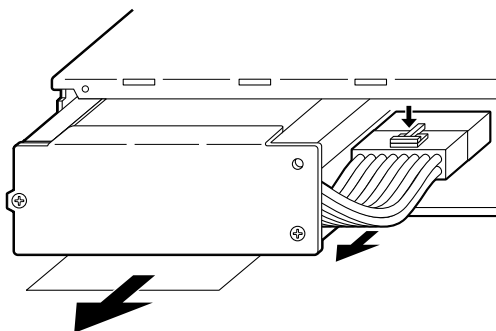


6. Maintenance and inspection

- 2-4** Hold down the snap-on plug of the battery connecting cable ①, and pull the cable ②. Hold the white pullout label and remove the battery pack ③, and pull out the battery pack toward you.

When you see a red tape stuck on the top of the battery pack, you can demount the battery by pulling out the pack 10cm further. Hold the battery securely with your both hands not to drop it.

Demount another battery pack in the same way. Do not try to demount two battery packs together. Doing so may cause dropping the battery packs and injury as the center of gravity of the battery packs leans toward the front.

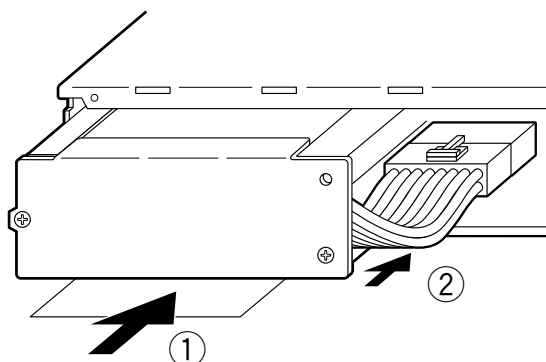


- 2-5** Insert a new battery pack into where you can hook the battery pack plug-in cable and the UPS connector ①.

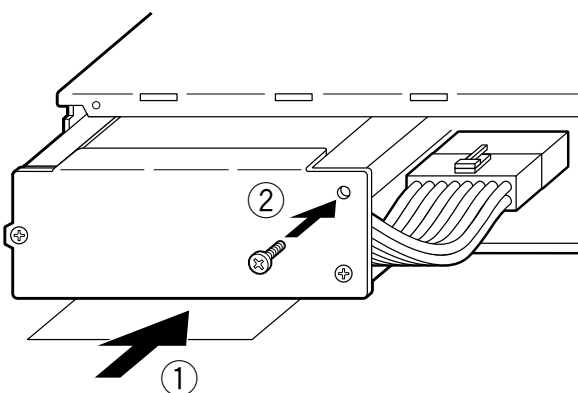
Insert the battery connecting cable plug into the connector of the UPS until it snaps on.

A fire may occur but it does not indicate failure.

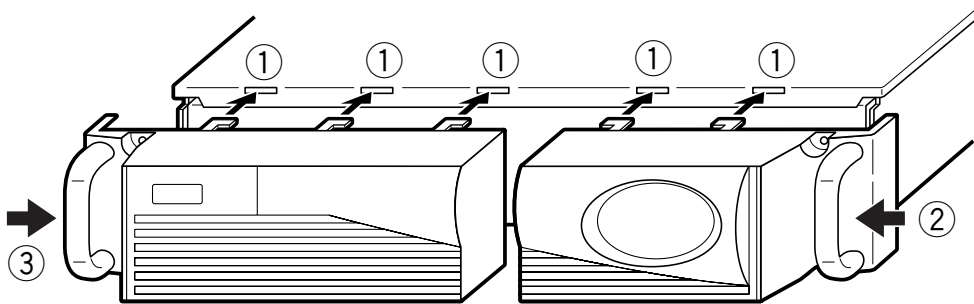
- Battery pack for replacement
Type: BP100XR



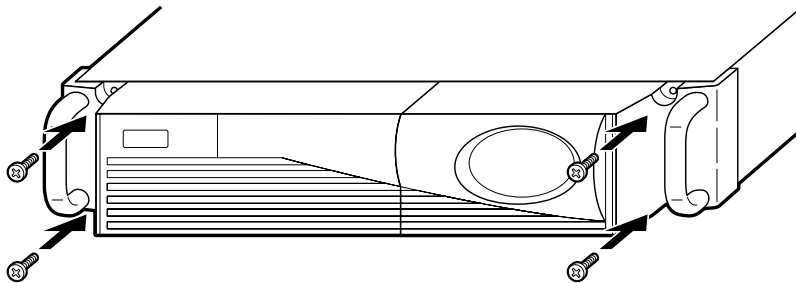
- 2-6** Insert a new battery into the UPS as far as it will go ①. Secure clockwise the screw at the right upper side of the battery pack ②. Hook and insert another battery pack in the same way.



- 2-7** Hook the cable attached to the right front panel into the connector. Hold and insert the lugs of the right front panel into the slots of the UPS ①, slide the right front panel to the left ②. Slide the left panel to the right in the same way ③.



- 2-8** Secure four screws at both sides of the front panels clockwise.
- Write the replacement date on the label on the top of the UPS.
 - In a case where you use the UPS monitoring software, input the replacement date of the new battery.
 - After the replacement of the battery, press the Start switch for over 20 seconds, and carry out the self-diagnostic test at the time of replacement of the battery. You will not hear a beep for the first 10 seconds, and eventually you will hear the beep every 10 seconds. When the beep started to sound continuously, turn off the Start switch. That completes the replacement of the battery.



Note

Discard the battery after replacing.

- * If you keep the old battery for a long time, dilute sulfuric acid may leak from the battery.
- * For information on discarding the battery, please contact us.

6-3 Cleaning

1. Cleaning of the UPS

Damp a soft cloth with water or detergent, squeezes it tightly, and wipes the UPS lightly.
Do not use chemicals such as thinner and benzene. (They cause deformation or discoloration.)

2. Removing dust from the AC Input Plug of the UPS

Turn off all the devices linked to the UPS and the UPS, and remove the AC Input Plug from a wall outlet (commercial power).

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

(For information on the connection, see "2. Installation and connector" on page 12.)

6-4 Cautions at the maintenance of devices connected to the UPS



Cautions

Before maintaining devices connected to the UPS, turn off the UPS and remove the AC Input Plug from a wall outlet (commercial power).



- Even if you remove the AC Input Plug during the operation of the UPS, the backup function of the UPS keeps feeding power through the power supply output receptacle of the UPS.
- In a case where the scheduled operation is ON and the AC Input Plug of the UPS is put in a wall outlet (commercial power), the UPS starts feeding power at the starting time of the scheduled operation.

7. Using the Network Link Surge Protection Function

Line Surge Protection Function

This function is to absorb surge voltage (abnormally high voltage) that may occur on the telephone line or network cable due to thunder. The function protects your modem, TA, and network card from surge damage.

*** If you do not use the Network Line Surge Protection Function, this step is not required.**

*** Network Line Surge Protection Function does not comply with UL standard (UL497). If you require UL standard, do not connect telephone to Modem/TA/PC Side.**

The following 2 types of connectors are available for the Network Line Surge Protection Function.

- RJ45 (8-pins) and RJ11 (2-pins, 4-pins, or 6-pins)

7-1 When connecting to the telephone line or ISDN line

Connect the telephone line that comes out of the wall to the Line/Hub Side of the Network Line Surge Protection of the UPS.

Use the supplied telephone cable (modular cable) to connect between the Modem/TA/PC Side of the Network Line Surge Protection of the UPS and your modem, FAX and others DSU (or a terminal adaptor with built-in DSU).

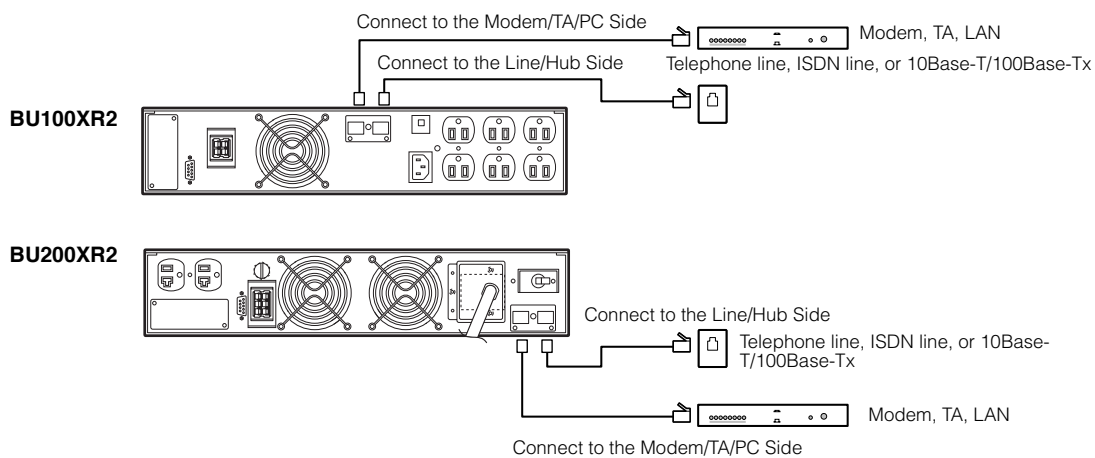
7-2 When connecting to LAN 10Base-T/100 Base-Tx

To protect your 10Base-T/100 Base-Tx (twisted pair cable without shielding) network interface, you need to purchase separately a cable equivalent to your cable in use.

Connect the 10Base-T/100Base-Tx cable from HUB to the Line/Hub Side of the Network Line Surge Protection of the UPS.

Connect between the Modem/TA/PC Side of the Network Line Surge Protection and the network interface of you PC with the cable you purchased separately.

7-3 Example of connection

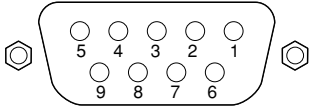


8. Using the UPS monitoring software and contact signal I/O

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

8-1 RS232C • Contact signal I/O

The RS232C/Contact Signal Connector I/O at the rear of the UPS provides both the function to communicate with the UPS monitoring software and the contact signal I/O function. There is no option that you need to purchase separately.

Pin configuration	Pin number	RS232C signal name	Contact signal name
 <p>DSUB 9P female</p> <p>Front view Screw diameter: inch screw #4-40 UNC</p>	1		BL
	2	T X D	
	3	R X D	BS
	4	P n P	
	5	GND	GND
	6	P n P	
	7	P n P	
	8		BU
	9	RING	

8-2 When performing the auto shutdown processing by the UPS monitoring software

The preinstalled UPS monitoring software allows you to save files automatically and perform shutdown processing of your PC when a power failure occurs. However, the time between the occurrence of a power failure and the completion of the shutdown of your PC must be within the backup time measured in "5-1 Measuring method of the backup time" on page 32. For further information on the explanation and operation, refer to either the UPS monitoring software instruction manual or the online help about the UPS monitoring software.

Explanation

Scheduled operating mode using the UPS monitoring software

- When making the settings of the scheduled operating mode, which turns off the UPS and opens the circuit breaker to shut off commercial power at the same time, you must set the starting time shorter than 90 days after the commencement of this scheduled operating mode.
If you make the settings of the scheduled operating mode longer than 90 days, the internal timer is forced to reset and the scheduled operation become disable.
Notice that a dead battery gives you only about half of the setting time; approximately 45 days.
If you make the setting of the scheduled operating mode longer than 90 days, you can press the Start switch and get the UPS running, however, in case where the battery is dead, you may not be able to get your UPS running again. When you are unable to get your UPS running, replace the battery according to "6-2 Replacing the battery" on page 33.

How to get your UPS running where it is set in scheduled operating mode through the UPS monitoring software

- When you want to get your UPS running by pressing the Start switch under circumstances where your USP is dead as it is set in the scheduled operating mode, just press the Start switch for at least 0.5 second and your UPS enters into the usual service conditions after 15 seconds.
When you want to make a stop of your UPS, just press the Stop switch for at least 2 seconds.

Explanation
<p>Auto restart after the completion of the OS shutdown processing through the UPS monitoring software</p> <ul style="list-style-type: none">● For certain PC models (*1), they automatically restart immediately after the completion of the OS shutdown processing through the UPS monitoring software in the event of a power failure. In this event, the UPS will probably make a stop during or after the restart of the PC, and files and hard disk mounted in your PC may be destroyed. You can avoid this problem by disabling POWER MANAGEMENT in the BIOS settings of your PC. * 1) certain PC models: It is reported that MICRON's Millennia Mm likely brings about the problem.● When the PC does not startup automatically, select a "System startup at power return" setting (such as "Restore On AC/Power Loss) at the BIOS settings and change to a "Startup power returned system" setting (such as "Power On"). Individual BIOS setting method and/or display may differ depending on the PC. For more information, consult your instruction manual or contact your technical support center.● When considering a system with automatic startup at power return, choose a PC that satisfied the following conditions. For more information on PC operation at input power on, consult your instruction manual or contact the PC technical support center. <p><Condition> The PC starts up at input power on without depressing the power switch</p>
<p>Automatic shutdown of UPS</p> <ul style="list-style-type: none">● Due to RS232C signal voltage from PC, UPS may stop earlier than system shutdown time set by automatic shutdown software after completion of OS shutdown.

Notes
<ul style="list-style-type: none">● In the case of WindowsXP/2000 computers, you need to install special-purpose driver. You can find the driver supplied with "PowerAssitant," or you can download the driver at http://www.omron.co.jp/ped-j/index.html. For the further information on how to install, see the supplied instruction manual.

8-3 When performing the auto shutdown processing by the UPS Service of WindowsXP/2000

A standard UPS Service installed in WindowXP/2000 OS computers is available when you use the UPS Service with the connecting cable and special-purpose driver supplied with "PowerAssitant."

- **Connection**
 - DOS/V computers.....Use the connecting cable supplied with "PowerAssistant."
Connect the RS232C/Contact Signal I/O Connector of the UPS and the RS232C port of the server/PC.

Notes
<ul style="list-style-type: none">● In the case of WindowsXP/2000 computers, you need to install special-purpose driver. You can find the driver supplied with "PowerAssitant," or you can download the driver at http://www.omron.co.jp/ped-j/index.html. For the further information on how to install, see the supplied instruction manual.

8-4 When performing the auto shutdown processing by the UPS Service of WindowsNT

A standard UPS Service installed in WindowsNT OS computers is available when you use the UPS Service with an optional cable; BUC16.

● Connection

- DOS/V computers.....Use an optional cable; BUC16.
- NEC PC9801, 9821 series.....Use an optional cable; BUC19.

Notes

- In the case of a WindowsNT server, select from the sever menu as follow. A wrong setting of the remote UPS shutdown brings about the backup failure of the UPS in the event of a power failure. For further information, see "Setting UPS" of the WindowsNT4.0 Instruction Manual and/or "WindowsNT4.0 help file. The signal settings are as follows.

Power supply shutdown signal: Negative (for initial value, WindowNT server is set as negative while OS2Lan server as positive)

Battery weak/dead signal: Negative (for initial value, WindowNT server is set as negative while OS2Lan server as negative)

Remote UPS shutdown: Positixe (for initial value, WindowNT server is set as negative while OS2Lan server as positive)

- For Netware users, call up the command screen, and enter as follow to load a UPS module into the file sever.

```
LOAD UPS TYPE=6 PORT=_ REV=2
```

After the input, press the Enter key.

Enter the serial port number, which is connected to the UPS, after PORT=. (1 or 2)

8-5 Details on Contact Signal I/O

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 battery low signal. Also, by inputting the backup stop signal from the system, you can stop the UPS with an enough battery amount to prepare for the next occurrence of a power failure.

1. Signal output

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

- Backup signal output: BU
BU stays ON during a power failure.
- Battery low signal output: BL
BL goes ON (LOW) when the current remaining of the battery is getting flat in the backup mode operation. BL actually goes ON (LOW) when at least 1.5 minutes before the UPS makes a stop. The time may be less than 1.5 minutes where the battery becomes deteriorated and the backup time becomes shorter.

2. Input of the UPS Stop Signal (BS)

- Acceptance of stop signal only in the time of backup mode
You can stop the UPS by transmitting a voltage signal (High) that continued more than 0.01 sec. (10 m sec.) from the outside of the UPS.
The stop signal is acceptable only in the time of backup mode.
- Acceptance of stop signal both in the usual service mode and in backup mode.
You can stop the UPS by transmitting a voltage signal (High) that continues more than 10 sec. from the outside of the UPS.

3. Connection to the system

Please design a cable wiring by yourself.

(For the samples of the circuit, see "7. Example of connection: the Contact Signal I/O Circuit" on page 46.)

4. Contact Signal I/O ratings

- Signal output (BU and BL)

Photo coupler ratings

Applied voltage: 24VDC or less

Maximum current: 10mA

- Signal input (BS)

Input voltage: HIGH 5 to 12VDC, LOW 0.8VDC or less

- BS is acceptable both in usual service mode and backup mode.

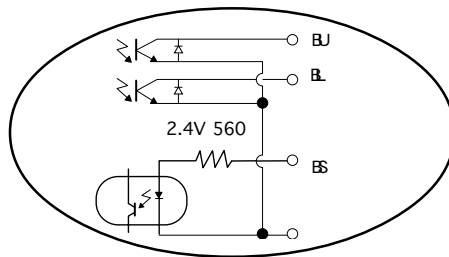
BS becomes unacceptable when voltage signal continues over 10 seconds.

- BS is acceptable only in backup mode.

BS becomes unacceptable when voltage signal continues over 0.01 second (10ms).

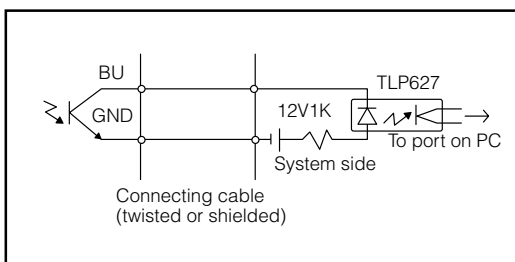
* For further information on the setting of the UPS Stop Signal, see "9-1 Functions that can be set/change from the UPS" on page 47.

5. Contact Signal I/O circuit inside the UPS

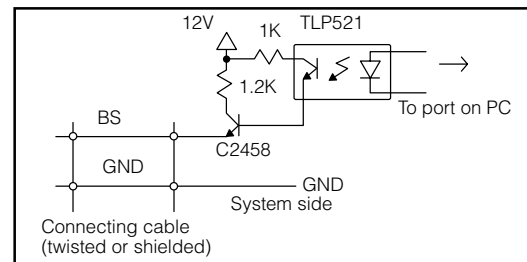


6. Example of the use of the Contact Signal I/O circuit

- Example of the use of the BU signal



- Example of the use of the BS signal



8-6 Precautions and notes on the use of the Contact Signal I/O

Notes

When connecting a device that generates counter electromotive force such as a relay to the signal output circuit, connect a diode to prevent counter electromotive force across the relay.

Explanation

- After shutdown processing and recovery from a power failure, the UPS automatically restarts and supplies power. If you do not want to start the devices connected to the UPS, turn off their switches in advance.
- The UPS monitoring software allows you to disable the automatic restart.

9. Changing the setting of the functions

The UPS provides the following setting functions. The settings are maintained even after the UPS is shut down.

9-1 Functions that can be set/change from the UPS

- Changing the acceptance conditions of the Backup Stop Signal (BS).
You can select the acceptance conditions of the Backup Stop Signal from either of two modes as below.
 - * "Accept only during Battery mode"
 - * "Accept both during line mode and during Battery mode"

Notes

Setting the acceptance conditions of the Backup Stop Signal (BS)

- **The factory- setting is "Accept only during Battery mode."**

Do not change the factory-setting except when the UPS is under the following conditions.

Also do not change the factory-setting when using the supplied UPS monitoring software, PowerAssistant.

- If you change the setting of "Accept both during line mode and during Battery mode." The UPS can make an accidental stop at the startup of the PC, which may break files and others.
It is reported that the problem occurs when an expansion SCSI board is added to Sony VAIO R series PC.
- Do not start up the PC during the battery mode. The UPS will make a stop at the startup.

- **Changing the factory-setting**

When you always want to restart your system as an automatic system, for examples, Windows NT's UPS service that enables you to perform auto save processing, the contact signal that enables you to configure a shutdown system, and others, change the settings of "Accept both during line mode and during battery mode."

- In a case you want to run the WindowsNT UPS Service, you will always need to change the factory-settings, otherwise WindowsNT's power reset and auto restart functions become out of control. These problems usually take place when irregularities in the mains supply are restored before the UPS comes to a stop, which follows a power failure shutdown.
- When you change the setting, the UPS may stop at the startup of the PC, however, it depends on PC models.
Before beginning the first run of the system, check whether the UPS comes a stop at the startup of your PC and go through a series of steps below.

* **Checking steps**

1. Remove the AC plugs of the devices such as PC and peripheral devices from the Power Supply Output Receptacles of the UPS.
2. Put the plugs of PC and peripheral devices in a wall outlet (commercial power).
3. Connect the serial port of PC and the UPS.
4. Start up PC.

Check whether the UPS comes to a stop or not.

* In the case where the UPS keeps running, then you may select the "Accept both during line mode and during battery mode" setting.

In the case where the UPS come to a stop, select "Accept only during Battery mode" setting before use.

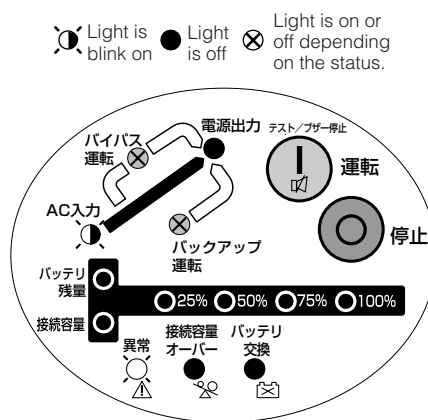
* Check whether there are no problems with the UPS, and put the AC plugs of PC and peripheral devices.

For further information on the connection, see "2. Installation and connection" on page 12.

9. Changing the setting of the functions

● Setting steps

1. Unplug the UPS and let it to a standstill. Press the Start switch for at least 0.5 second while pressing and holding Stop switch.
2. The AC Input Lamp blinks and the Bypass Mode Lamp or the Battery Mode Lamp goes on.
3. Under the condition, press and hold the Start Switch again for at least 0.5 second. Either of the Bypass Mode Lamp or the Battery Mode Lamp turns on, and let the setting change.
 - The Bypass Mode Lamp lights up:
It lets the UPS accept the signal both during line mode and battery mode.
You can bring the UPS into a standstill by the voltage signal, which continues at least 10 seconds.
 - The Battery Mode Lamp lights up:
It lets the UPS accept the battery mode only.
You can bring the UPS into a standstill by voltage signal, which continues at least 0.01 second (10 ms).
- * Factory-setting: Accept BS signal only during Battery mode.
4. When the desired setting is displayed, press and hold the Stop switch for at least 2 seconds, and then the setting is completed.



9-2 Functions that can be set/change from the UPS monitoring software

1. Beeper ON/OFF setting
 - ON**: The beeper sounds when an alarm is necessary.
 - OFF**: Let the beeper disable.
 - * Factory-setting: ON
2. Auto battery test ON/OFF
 - ON**: The battery test is automatically executed every 4 weeks.
If the test decides that the battery needs replacing, the UPS generates a replacement alarm.
 - OFF**: The battery test, which is executed automatically at intervals of 4 weeks, comes to a standstill.
Set the test OFF in the cases where you want to let the automatic battery test and battery mode come a standstill.
 - * Factory-setting: ON
3. Auto restart ON/OFF
 - ON**: The UPS startup automatically and starts to feed power at the time when the commercial power is restored. It always takes place after the UPS is shut down through UPS monitoring software or the contact signal in the event of power failures.
 - OFF**: The UPS will not startup automatically at the time when the commercial power is restored following the shutdown of the UPS through UPS monitoring software or the contact signal. You only can start up the UPS manually by pressing the Start switch.
 - * Factory-setting: ON

10. Troubleshooting

Problems	Remedies
The UPS does not operate, or the AC Input Lamp does not go on.	<p>The AC Input Plug is not put in a wall outlet.</p> <ul style="list-style-type: none"> • Check whether the AC Input Plug is certainly put in a wall outlet. The red button pops up from the AC Input Overcurrent Protection. (BU100XR2) The AC Input Overcurrent Protection is OFF. (BU200XR2) • It is suspected that too many devices are connected to the UPS, or the devices developed a short circuit. Reduce connected devices or check the fuses of devices. In a case where the devices connected to the UPS are normal, then disconnect all of the devices from the UPS, turn on the Red button of the AC Input Overcurrent protection and put the AC Input Plug in a wall outlet (commercial power). In case that the AC Input Overcurrent Protection still remains OFF, you may assume a failure.
Battery mode does not function. The devices connected the UPS comes to a stop when a power failure occurs.	<p>It is suspected that the battery is not charged fully.</p> <ul style="list-style-type: none"> • Turn off every device linked to the UPS and charge the UPS for at least 8 hours. After the completion of the battery charge, bring the UPS and every device linked to the UPS to a standstill, and turn on the Start switch again. Remove the ACA Input Plug from a wall outlet (commercial power). In case where the battery mode does not function at all, replace the battery pack as the life of the battery expired.
The UPS enters into the battery mode frequently	<p>Voltage fluctuations at low voltage level occur frequently or the voltage contains noises, which bring about an extreme distortion of the voltage waveform.</p> <ul style="list-style-type: none"> • Change the wall outlet (commercial power) to which you put the plug of the UPS. Plug the UPS in other wall outlet (commercial power) at some distance away from the devices that consumes large power. • The similar problem may occur also when you put many devices in a plug strip or extension cord plugged in the UPS as well.
The display of devices linked to the UPS is abnormal. • Jitter of the display • While lines of the display	<p>It is assumed that a noise occurred inside of the UPS causes jitter and white lines of the display.</p> <ul style="list-style-type: none"> • Ground the UPS and every device linked to the UPS. Put them in a grounding-type receptacle (commercial power), or a receptacle with a grounding terminal. • The problems may occur where a power cord is too long, some of the power cords are adjacent to one another, or the UPS and devices to linked to the UPS are adjacent one another. Change the placement of the UPS and devices • If the UPS or devices connected to the UPS are placed in a metal rack, ground the rack.
The Connection Capacity Exceeded Lamp goes on.	<p>The total capacity of the devices connected to the Power Supply Output Receptacles of the UPS exceeds the rated capacity; 1 KVA/700W for BU100XR2 or 2KVA/1.4KW for BU200XR2.</p> <ul style="list-style-type: none"> • Reduce connected devices.
The Battery Replacement Lamp goes on.	<p>The auto battery test indicated that the life of the battery expired.</p> <ul style="list-style-type: none"> • The battery mode cannot be functioned and therefore replace the battery pack.
The Error Lamp goes on.	<p>An error or faulty has occurred in the UPS.</p> <ul style="list-style-type: none"> • Bring the UPS and the devices connected to the UPS to a standstill. Remove every device connected to the UPS, and then turn on the Start switch of the UPS. In the case the UPS restores in usual service condition, it is assumed that the some of the devices linked to the UPS developed a short circuit. Check devices. In the case where the problem still persists, bring the UPS to a standstill for one hour, and then restart the UPS. In a case where the UPS restores in usual service condition, it is assumed temperature rise, then improve ventilation around the UPS. Finally if you cannot solve the problem after one hour, it is assumed that the UPS may be out of order and need repair. Contact us:
No output despite operation mode indication is normal (For BU200XR2 only)	<p>It is assumed that output fuse is burnt.</p> <ul style="list-style-type: none"> • Stop operation of UPS and check the output fuse. Replace the fuse if it is burnt.

References

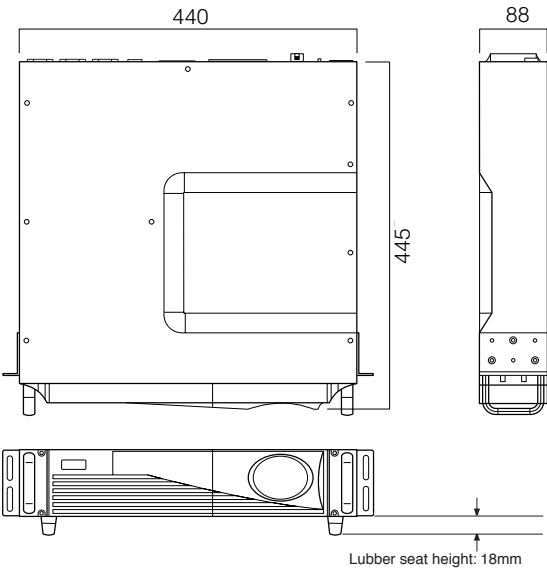
A. Specifications

Operation method	Operation method Cooling method	Full-time inverter power supply method Forced air cooling method	
Input	Rated voltage range Frequency Maximum current	87 to 120VAC 72 to 120VAC 50/60Hz 10.2A 20A	At the time of over 75% loading At the time of below 75% loading Bu100XR2 BU200XR2
Output	Number of phases Rated capacity Output waveform Frequency/accuracy Number of phases Overload protection Switching time (at power failure) Bypass switching time Bypass switching is possible Range of input current	Single phase 2 lines 1KVA/700W 2KVA/1.4KW 100AVC \pm 3% Sine wave In synch with input frequency (Line mode) 50/60Hz \pm 1Hz (Battery mode) Single phase 2 lines Warning through the beeper and display at the time of rated capacity or greater Switched to the bypass mode when 105% or larger of rating continues for 3 minutes or over Switched to the bypass mode when 125% or larger of rating continues for 30 seconds or over Switched immediately to the bypass mode when 150% or larger takes place Non intermittent 4msec or less 80 to 115ACV	Bu100XR2 BU200XR2 Auto retransfer system At startup, Under abnormal conditions, excessive capacity, Under abnormal conditions, excessive capacity,
Battery	Type Voltage Capacity/quantity Backup time Charging method Charging time	Sealed lead-acid battery 36V 72V 7.2Ah/12V X 3 packs 7.2Ah/12V X 6 packs 5 minutes (at rated load) Constant voltage constant current charging 8 hours (20°C)	Bu100XR2 BU200XR2 Bu100XR2 BU200XR2 Initial value 20°C, Rated load 80% for 4 hours
Environ- ment	Operating ambient temperature Operating ambient humidity Storage temperature Storage humidity Withstand voltage Insulation resistance Leak current Thunder surge resistance	0 to 40°C 25 to 85%RH -15 to 40°C 20 to 90%RH 1500VAC, 1 one minute 10M ohm or more 1mA or less To ground 4KV/between lines 20KV	500VDC
Standards	Safety standard VCCI Input harmonics	Complied with UL1778 Adherence to Class A IEC1000-3-2	
Others	Internal power consumption Noise Outer dimension (mm) Weight	170W or less 330W or less 50dB or less W440 X D445 X H88 W440 X D426 X H88 19 Kg 12 Kg 26 Kg W440 X D445 X H88	BU100XR2 BU200XR2 BU100XR2 BU200XR2 (main unit) MB1002/MB200XR2 (Battery unit) BU100XR2 BU200XR2 (main unit) MB1002/MB200XR2 (Battery unit)

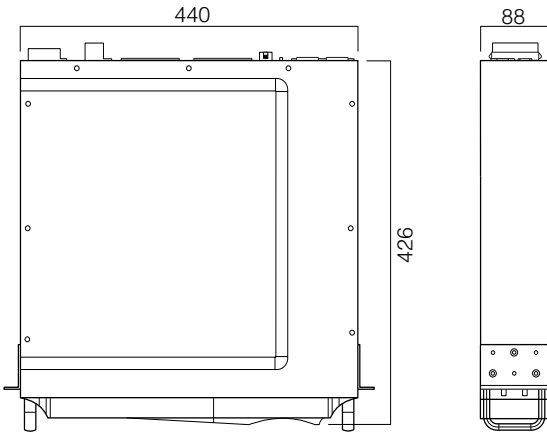
B. Dimensional outline drawings

< mm >

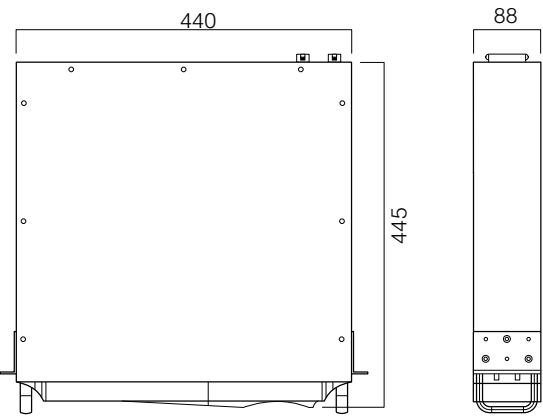
BU100XR2



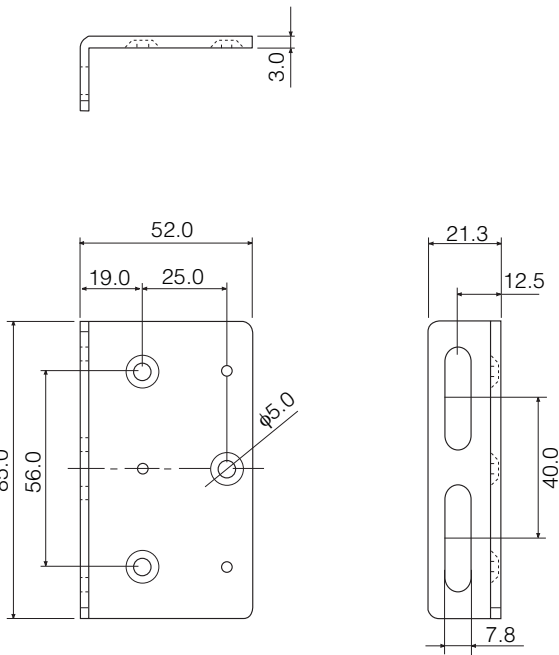
BU200XR2 (main unit)



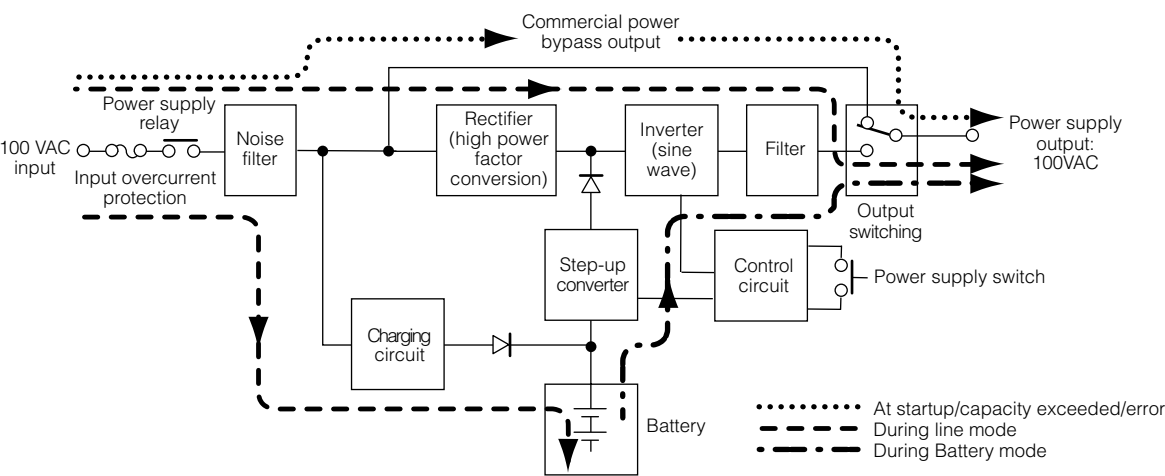
MB100XR2
MB200XR2
Battery unit



Rackmount fittings



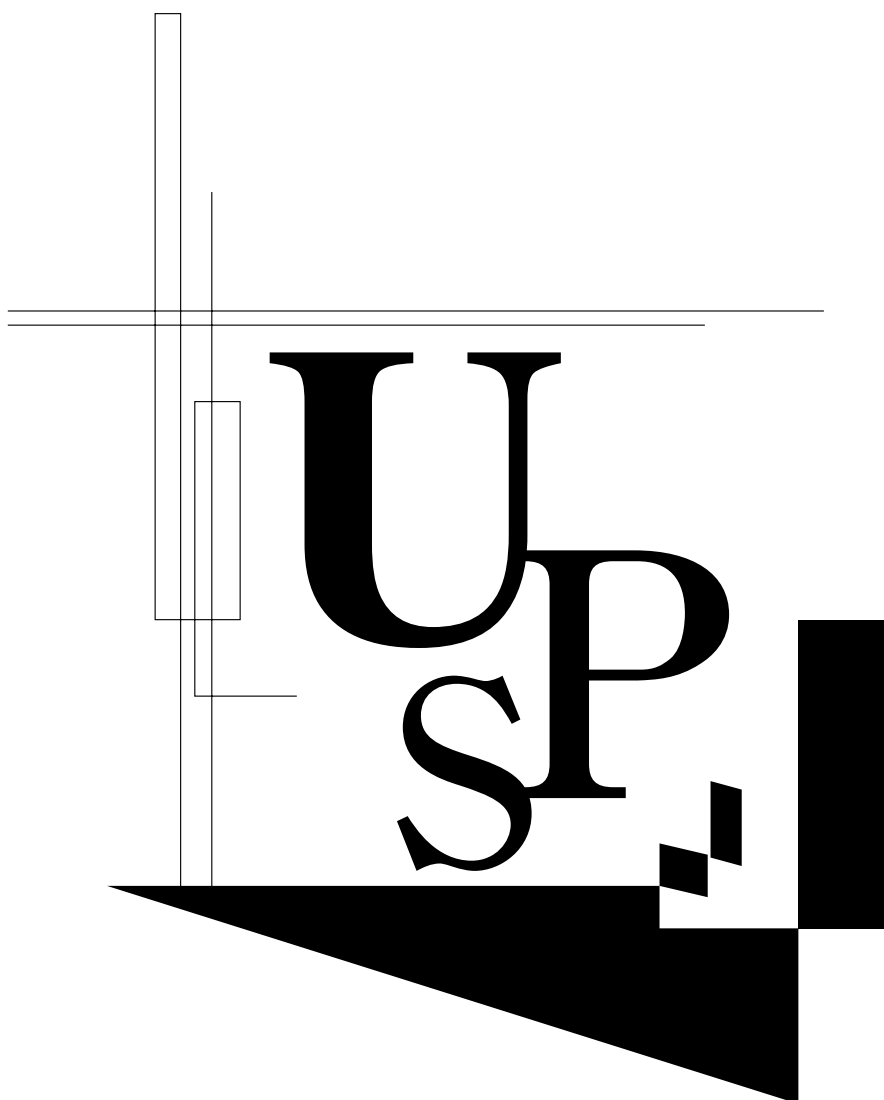
C. Circuit block diagram



D. Optional parts and products

The following optional devices and parts are available. For further information, see general catalogs of Omron's peripheral devices.

● Replacing battery pack of both BU100XR2 and BU200XR2	(Model: BP100XR)
● Add-on battery unit for BU100XR2	Unit (BU100XR2), inner battery and an equivalent-size of two add-on batteries (Model: MB100XR2)
● Add-on battery unit for BU200XR2	Unit (BU200XR2), inner battery and an equivalent-size of one add-on battery (Model: MB200XR2)
● Cable for Windows NT UPS service (For DOSV)	(Model: BUC16)
● Cable for Windows NT UPS service (For NEC PC9800, 9821 series)	(Model: BUC19)
● Powerassistant, BUC16, BUC19, Extension cable (4.5m)	(Model: BUC17)



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