



by Schneider Electric

Installation and Operation Home UPS BI850SINE-IN/BI1500SINE-IN

Overview

The APC™ by Schneider Electric Home UPS provides power to connected equipment during a power outage. If there is a loss of power or if the mains voltages are abnormal, the UPS will automatically switch any connected equipment to battery power. The UPS can be hardwired into a home electrical system to supply power to equipment such as lights, fans, televisions, and personal computers.

Safety



Caution: The Home UPS should be installed by an APC Service Provider or a licensed electrician. Failure to do so may damage the Home UPS and void the warranty.



Caution: The Home UPS must be connected to an appropriate battery. Use APC branded batteries because the charging output characteristics of the Home UPS are specifically designed to match APC branded batteries, ensuring the quickest recharge times and longest overall lives.



Note: It is not recommended to connect more than one battery in parallel to the Home UPS as it may not be able to completely recharge the multiple batteries between power outages, leaving the batteries in a chronic state of low voltage.



Do not operate this unit in direct sunlight, in excessive heat, in contact with fluids, or where there is excessive dust or humidity.

APC Contact Information

Toll free (BSNL Network): 1-800-4254-272

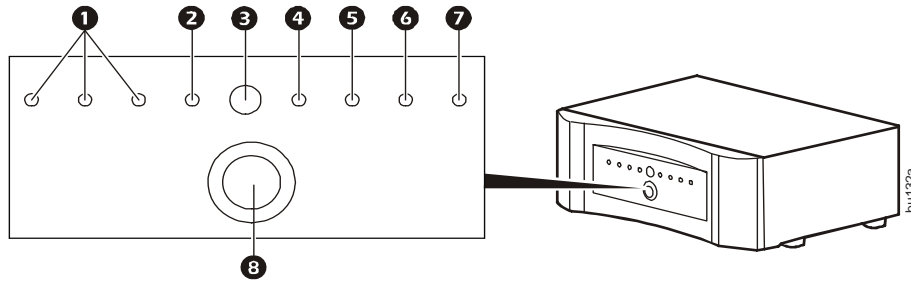
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Product Overview

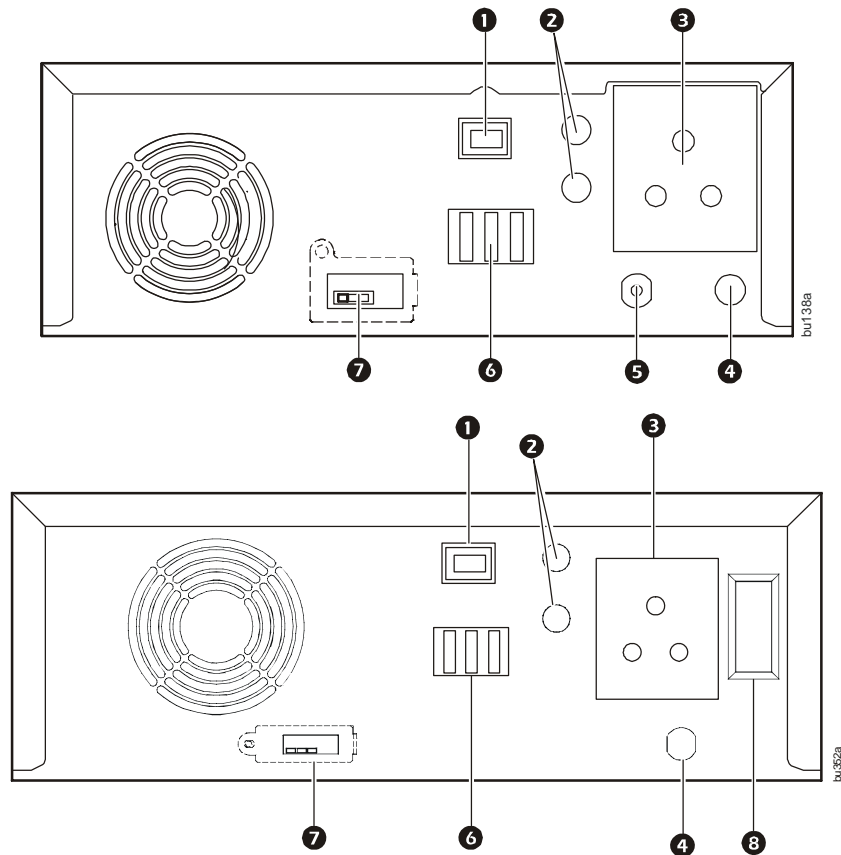
Front panel



1 INVERTER LOAD LEDS	<p>The INVERTER LOAD LEDS will illuminate when the Home UPS switches to battery power and indicate the percentage of the unit output capacity being used by the connected equipment.</p> <ul style="list-style-type: none"> • 50%: the unit is using 33-66% of output capacity • 75%: the unit is using 66-85% of output capacity • 100%: the unit is using 85-100% of output capacity <p>Note: When the Home UPS is receiving Mains power, these will not be illuminated.</p>
2 FAULT	<p>If illuminated, the unit is overloaded, has a shorted output, has overheated, or there is an internal electrical fault. Contact APC Technical Support.</p>
3 START/MUTE/TEST	<p>Start: Press once to apply power to the unit. If the unit is in AWAY mode, and there is no mains input power, press and hold START for two seconds to connect the load to backup power. This will put the unit into HOME mode.</p> <p>Mute: Press and hold for one second to mute any audible alarms.</p> <p>Test: Press and hold for two seconds to start a diagnostic self test.</p> <p>Note: This button will illuminate when the Home UPS is disabled (in AWAY mode).</p>
4 ON MAINS	<p>If illuminated, the unit is receiving mains power.</p>
5 ON BATTERY	<p>If illuminated, the unit is supplying battery power to the connected equipment.</p>
6 CHARGING	<p>If blinking, the unit is receiving input mains power and is recharging the battery. If illuminated and solid, the battery is fully charged and the unit is receiving input mains power.</p>
7 CHECK BATTERY	<p>If blinking, the unit is not able to charge the battery. The battery may have a shorted cell, low water level, or be near the end of its life. Replace the battery.</p>
8 HOME/AWAY	<p>Home: Set the switch to HOME so that the unit will switch to battery power in the event of a power outage.</p> <p>Away: Set the switch to AWAY so that the unit will not switch to battery power during a power outage. This allows the battery to recharge, but prevents unnecessary discharges and extends the life of the battery. If the LED above this switch is illuminated red, the unit is in AWAY mode.</p>

Note: Toggle the HOME/AWAY switch to reset fault indication.

Rear panel



❶	UPS/ INVERTER switch	<p>UPS: Use with personal computer and small electronic devices that require a regulated input range of 190-260 Vac. The Home UPS will ensure that connected equipment is only exposed to safe voltages by switching to battery power more often. This will decrease battery run time.</p> <p>INVERTER: Use with household lights, fans, and other home electronic appliances that can tolerate less regulated input voltage ranges of 100-290 Vac. In this mode, the unit will switch to battery power less often.</p>
❷	Battery cables	<p>Connect one flat-plate or tubular 12 V battery for BI850SINE-IN. Connect two flat-plate or tubular batteries in series for 24 V for BI1500SINE-IN. Ensure that the CHARGER OUTPUT switch is set to the position that matches the size of the battery. Note: A Sealed Maintenance Free (SMF) battery can be connected to the Home UPS to provide backup power. The SMF battery may have a shorter lifespan when used with the Home UPS because it has a different charging profile than a flat-plate or tubular battery.</p>
❸	AC Output	<p>Connect electrical devices such as desktop computers, televisions, fans, or lights.</p>
❹	AC Input	<p>Connect the unit to mains power.</p>
❺	Circuit breaker	<p>The thermal circuit breaker in BI850SINE-IN will trip if there is an overload while the unit is operating on mains power. Press to reset the circuit breaker. Note: If the unit is overloaded, the circuit breaker will trip. There is no indication of this on the front panel of the unit.</p>
❻	Battery fuse	<p>If the battery terminals are reversed during installation, the fuses will protect the unit from damage.</p>
❼	CHARGER OUTPUT switch	<p>Set the switch to match the size of the battery that is connected to the unit. This will ensure that the battery receives the correct charging current to prevent overcharging and undercharging, which will extend the life of the battery. See Installation for more information. Only an APC authorized technician should adjust this setting. Note: To ensure the longest possible battery life, use APC branded batteries.</p>

8	Miniature Circuit Breaker	Miniature Circuit Breaker (MCB) in BI1500SINE-IN will trip if there is an overload while the unit is operating on mains power. Manually reset the MCB. Note: If the unit is overloaded, the circuit breaker will trip. There is no indication of this on the front panel of the unit.
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Installation

Install the Home UPS on a flat surface.

Connect External Battery



Electrical Hazard: Do not make contact with both of the battery terminals simultaneously with metal parts like screw drivers or spanners.

Sparking may occur during connection of battery cables to battery terminals.

Use only the battery cables provided with the unit to connect the external battery. Do not extend the length of these cables.

1. Use a Phillips screwdriver to open the metal panel at the rear of the unit to access the CHARGER OUTPUT switch.
2. Select the appropriate setting for the battery that will be used with the Home UPS.

Charger Output	Battery Size (C20 Rating)	Switch position
8 A	80-100 Ah	
10 A	110-120 Ah	
13 A	130-150 Ah	
15 A	160-180 Ah	

3. Connect the red cable to the positive (+) battery terminal.
4. Connect the black cable to the negative (-) battery terminal.
- 5. For BI1500SINE-IN:**
 - a. Use the battery interconnector cable (supplied) to connect the two batteries in series.
 - b. Connect the negative (-) terminal of one battery to the positive (+) terminal of second battery.
 - c. Connect the red cable to the positive (+) battery terminal.
 - d. Connect the black cable to the negative (-) battery terminal.
6. Close the metal access panel and reinstall the screw removed in step 1.

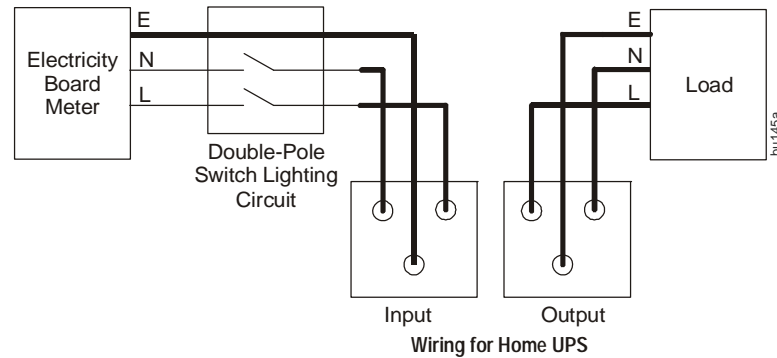
Connect equipment to the Home UPS



Caution: Ensure that all equipment that will be connected to the UPS during set up is disconnected from power and turned OFF.

1. Set the Home/Away switch on the front panel of the unit to HOME.
2. Connect equipment to the Home UPS. Use the 15 A three-pin connector on the rear panel of the unit.

Typical Home/Office Wiring after Home UPS Installation



Connect the Home UPS to mains power

1. Disconnect mains power to the wall outlet to which the Home UPS will be connected.
2. Connect a 15 A three-pin plug (not included) to the input cable on the rear panel of the unit.
 - a. Red wire - Phase/Line
 - b. Black wire - Neutral
 - c. Green/Yellow wire - Earth/Ground
3. Connect the Home UPS to the wall outlet using the power cord on the rear panel of the unit.
4. Turn ON the connected equipment.
5. Reconnect mains power to the wall outlet.
6. Ensure that the ON MAINS and CHARGING LEDs on the front panel of the unit are illuminated.

Test the Home UPS

Test that the Home UPS is connected properly and will support the connected equipment in the event of a power outage.

1. Ensure that the Home UPS is On and that the equipment connected to the UPS is On.
2. Disconnect mains power to the wall outlet to which the UPS is connected.
3. Verify that the connected equipment is still On.
4. On the front panel of the Home UPS, the ON BATTERY and INVERTER LOAD LEDs should be illuminated. This will indicate that the UPS has switched the power supply to the equipment from mains power to battery power.



Note: If the connected equipment turned Off when the mains power to the UPS was disconnected, the UPS did not transfer the equipment to battery power. Ensure that the UPS and the connected equipment are properly connected. See “Troubleshooting” for more information, if the problem is not solved by troubleshooting, contact APC Customer Support.



Caution: If all of the INVERTER LOAD LEDs and the FAULT LED on the front of the Home UPS are illuminated, the unit is overloaded. Disconnect some of the equipment that is connected to the UPS. The unit will automatically restart after 60 seconds.

Operation

Auto restart. If all of the INVERTER LOAD LEDs and the FAULT LED on the front of the Home UPS are illuminated, the unit is overloaded. The Home UPS will continue to supply power for 60 seconds before it trips and then will automatically restart.

If the load drawn from the connected equipment is not reduced, the Home UPS will restart itself three times, and then completely turn Off, disconnecting power to connected equipment.

Disconnect some of the connected equipment to reduce the amount of power drawn from the Home UPS. Toggle the HOME/AWAY switch to restart the Home UPS.

Self test. The Home UPS will perform a self test every time the unit is turned on. If the unit is On mains power, press TEST on the front panel of the unit.

Recharge the battery. The battery connected to the Home UPS will automatically recharge when the unit is operating on mains or generator power.

Low voltage shutdown. The Home UPS will automatically shut down if the battery power drops below a safe voltage. This prevents the battery from being fully discharged.

Increase battery lifespan. Several factors can impact the lifespan of the battery. The ambient temperature, the number of discharge cycles, age, maintenance of voltage levels, recharging cycles, and the amount of discharge per cycle can all decrease the lifespan of the battery.

Follow these suggestions to increase the life of the battery:

- Set the HOME/AWAY switch to AWAY when leaving the house for extended periods of time. This will prevent unnecessary discharges of the battery during power outages.
- Connect only essential equipment to the Home UPS to minimize the amount of discharge of the battery and to reduce the recharge time.
- Store the battery in a cool place, away from heat sources like direct sunlight or air conditioning exhaust. Avoid keeping it in areas above 30°C.
- Batteries should be recharged immediately after each discharge and should never be allowed to stay in a discharged state.
- Maintain proper water levels in the battery using only distilled water. See the information provided with the battery for additional information on water levels.
- Ensure that the CHARGER OUTPUT switch on the rear panel of the unit is set to the correct Ah rating. See “Rear panel” on page 3 for more information.
- Batteries that are stored for long periods or time will eventually lose their charge, especially in higher ambient temperatures. Always maintain a fully charged battery, even when it is not in use.

Troubleshooting

Problem	Possible Cause	Corrective Action
The Home UPS does not supply power to the load while connected to mains power	The unit is overloaded and the circuit breaker has tripped.	Disconnect or turn Off some of the equipment that is connected to the UPS. Reset the circuit breaker on the rear panel of the unit.
	The unit has an internal electrical fault. (The FAULT LED on the front panel of the unit will be illuminated.)	Contact APC Customer Service.
The Home UPS does not supply power to the connected equipment during a power outage.	The unit is overloaded.	Disconnect or turn Off some of the equipment that is connected to the UPS. Toggle the HOME/AWAY switch to restart the Home UPS.
	The battery fuse has opened, possibly from an improper installation in which the polarity of the battery was reversed.	Replace the three fuses on the rear panel of the unit and ensure that the polarities of the battery are not reversed. If fuse opens again, contact APC Customer Service.
	The battery or wiring connections are loose or corroded.	Clean the battery terminals and secure cables to battery terminal. Check for any loose connections on the 15 A input plug.
	The battery has discharged or is dead. (The Home UPS automatically shuts off when battery voltage drops below a safe voltage).	Allow battery to fully recharge. Set the HOME/AWAY switch to AWAY to prevent discharge. The battery may take 10-12 hours to complete recharge.
	The HOME/AWAY switch is set to AWAY.	Set the switch to HOME. If the unit is not receiving mains power, press START.
The Home UPS is beeping continuously.	This can be caused by low battery voltage, failed or dead battery, an output short circuit, over temperature.	Recharge battery. If this does not solve the problem, contact APC Customer Service.
Television experiences interference	The Home UPS may be causing interference.	Move the television at least one meter away from the Home UPS.

Specifications

	BI850SINE-IN	BI1500SINE-IN
Input		
Voltage, nominal	230 Vac	
Operation voltage as Inverter	100-290 Vac	
Operation voltage as UPS	190-260 Vac	
Input frequency	45-53 Hz	
Maximum input current	10 A	
Maximum input voltage without damage	300 Vac	
Output		
Wave form	Sine wave	
Power rating on Mains	850 VA at 230 Vac	1500 VA at 230 Vac
Output voltage on Mains (UPS)	190-260 Vac (Mains voltage passed to load)	
Output voltage on Mains (Inverter)	100-290 Vac (Mains voltage passed to load)	
Output frequency on Mains	45-53 Hz (voltage passed to load)	
Output frequency on Battery	50 Hz +/- 1 Hz	
Battery Charger		
Type	DSP controlled, 3-stage regulated charging	
Output	Selectable output current: 8 A, 10 A, 13 A, 15 A	
Recharge time	10-12 hours	
Safety Protection		
Overload on Mains	Thermal circuit breaker, with reset button	Miniature Circuit breaker (MCB)
Overload on Battery	Shutdown after three automatic reset attempts	
Reverse battery polarity	Fuses on rear panel	
Low battery voltage	Automatic shutdown	
Other protection circuitry	Short circuit protection, Over temperature protection	
Environmental		
Operating temperature	0-45°C	
Storage temperature	0-60°C	
Humidity	0-95% non-condensing	
Altitude	0-3000 m	
Physical		
Dimensions W x D x H	35.0 x 26.5 x 14 cm	40.0 x 28.5 x 15.5 cm
Net weight	11 kg	17 kg
Input connection to Mains	1.5 m hardwired power cord with stripped leads	
Input connection to Battery	0.8 m hardwired cable with crimped terminal lugs	0.8 m hardwired cable with crimped terminal lugs along with 0.64 m hardwired cable with crimped terminal lugs for connecting two batteries in series.
Output connection	15 A (India)	