pulsar
TELECOM HUB

UNINTERRUPTIBLE POWER SUPPLY

SMART
600/800/1200/
1500/2000/3000

Operating Instructions

2 YEARS WARRANTY

Contents

Safety measures

The operating manual contains basic instructions that must be followed when installing and maintaining the uninterruptible power supply (UPS) and battery packs (Batteries).

The UPS is designed to be installed in enclosed spaces with regulated room temperature and free of conductive contaminants.

UPS and battery service must be performed by or under the supervision of specially trained, qualified personnel in accordance with UPS and battery safety rules.

Do not allow unauthorized personnel to work on the UPS and battery packs. When replacing the battery, use the same type of them.

WARNING

At the end of its service life, do not dispose the product with other household waste, but dispose it in the manner prescribed by law. When disposing the batteries, do not incinerate them, as this may cause the batteries to explode. Dispose defective batteries at recycling facilities.

Do not open or damage the battery. The leaked electrolyte is toxic and dangerous to skin and eyes.

Batteries may present a risk of electric shock. The following precautions must be observed when working with the batteries:

- **remove watches, rings and other metal objects;**
- **use a tool with insulated handles;**
- **use rubber gloves and shoes;**
- **do not place tools or metal objects on top of the battery;**
- **turn off the device before connecting or disconnecting it battery terminals.**

To reduce the risk of fire, plug the unit into an outlet with a current limit of 20 amps or less in accordance with ANSI/NFPA 70.

WARNING

For the safety of users, the UPS must be operated connected to a grounded power supply. It is not allowed to carry out any work with the UPS switched on when the plug is switched off.

The recommended lifetime of the UPS is 10 years.

Packing of electrical equipment transported from the place of manufacture must consider the specifics of the product, method of transportation and storage in order to protect it on the way from mechanical damage and climatic factors (direct exposure to precipitation, solar radiation and dust).

The type of delivery method (except for railroad, which can be used for transportation of any products) is specified when placing an order. Transportation conditions must comply with the requirements of GOST 15150.

Introduction

Thank you for choosing this uninterruptible power supply (UPS). It will provide reliable protection for your equipment. This manual contains instructions for installing and operating the UPS, including important safety precautions. If you encounter problems while operating the UPS, please read this manual before contacting technical support.

1 Description of the device

1.1 This UPS is a line-interactive uninterruptible power supply system. During normal utility power supply, the UPS provides protection against voltage fluctuations and recharges the built-in battery. In the event of a main power failure, the UPS immediately supplies power to the connected equipment from the built-in battery.

IBE's main benefits and functions:
— microprocessor control guarantees high reliability;
— compact size;
— integrated automatic regulator (AVR) for voltage stabilization;
— automatic restart during AC recovery;
— pure sinusoid simulation;
— charging when switched off;
— cold start function;
— Overload, short-circuit and over-discharge protection.

A description of all UPS parameters are given in Appendix B. The external appearance of the **SMART** series UPS is shown in Figure 1.

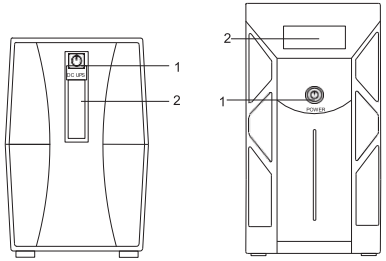

Figure 1 - Front Panel View of the **SMART** UPS Series

1 - On / Off button (picture 1)

Used to turn the UPS on and off, start the battery test, turn off / on the audible alarm.

2 - LED display or LED operating mode indicator (Figure 2)

The display of the **SMART** series UPS is shown in Figure 2.

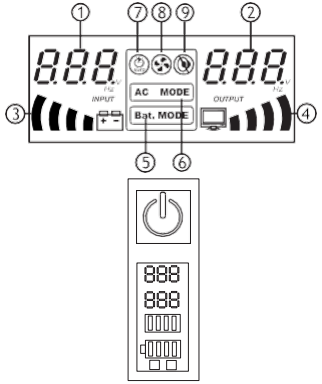

Figure 2 - **SMART** Series UPS display

LED display:

1. AC input voltage.
2. Output voltage.
3. Battery capacity.
4. Load level.
5. The UPS is operating in battery mode.
6. The UPS is operating in AC mode.
7. The UPS can be turned on automatically.
8. Fan is running (not indicated on some models without fan).
9. The sound is turned off, but the sound will turn on in case of overload, malfunction and low battery (models with lock button without this mark).

Note - When the battery is not fully charged, the battery capacity indicator with increasing circle of percentage pattern, which indicates that the battery is in the process of charging. When the battery is fully charged, the battery capacity indicator shows 100%. The appearance of the UPS LEDs is shown in Figure 3.

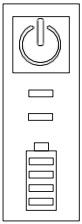

Figure 3 - **SMART** Series UPS Light Indication

Light-emitting diode indication:

1. **Green continuous**
   The UPS supplies stabilized power at the output.
2. **Continuous (bright) red color during battery operation**
   Buzzer beeps every 8 seconds. The battery is supplying power to the UPS socket outputs. Battery life is from 3 to 20 minutes, depending on the power of the PC and connected peripherals.
3. **Red continuous (bright) -** battery charge indicator. The buzzer emits frequent beeps when the battery charge level reaches the minimum level.

It is required to quickly save your data and close all applications followed by shutting down the operating system.

4. **Yellow - overload indicator**

Flashes continuously and buzzer beeps continuously. The UPS is in protection mode. The UPS is overloaded. Disconnect the excess load. The rear panel of the UPS is shown in Figure 4.

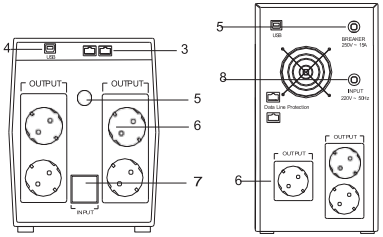

Figure 4 - **SMART** Series UPS back panel

Rear panel models without communication port or with USB port (optional)

3 - Communication port (optional)

Designed to communicate with a computer, it allows monitoring and control of the UPS.

4 - USB port (optional)

Designed to communicate with a computer, it allows monitoring and control of the UPS.

5 - Automatic fuse (breaker)

Provide protection in mains operation mode.

6 - Output sockets

7 - Input socket

8 - Input power cable

The appearance of the back panel of the UPS without switching port with C13 type connectors is shown in Figure 5.

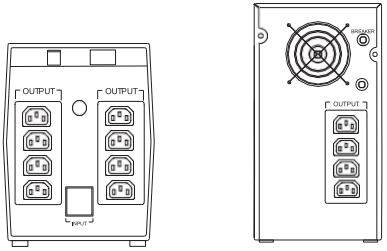

Figure 5 - UPS back panel without communication port or with USB port (optional) and C13 connectors

2 Installation

2.1 Checking

Check the UPS immediately upon receipt. Inspect the packaging for damage.

If the packaging is damaged, please contact your retailer at the place of purchase. The packaging is recyclable, keep it or dispose of it in the prescribed manner.

2.2 UPS placement

Install the UPS on a sturdy, dry surface in a well-ventilated area away from direct heat sources. Leave at least 100 mm clearance around the UPS to ensure adequate ventilation.

2.3 Electrical network

Use the supplied cable to connect the main input on the rear panel of the UPS to a tested, grounded main socket. The main voltage must match the rated voltage of the UPS. For example, if the UPS has a nominal operating voltage of 220 V, the main supply voltage must be 220 V.

WARNING

The UPS is intended for indoor use only.

2.4 Connecting the equipment

The power cables for the equipment to be protected must be connected to the output outlets on the rear panel of the UPS.

WARNING

Do not connect laser printers, plotters, household heaters, power strips, or other non-computer peripheral equipment to the UPS.

These periodically consume significantly more power than the UPS's maximum capacity and may overload the UPS or cause it to malfunction.

3 Operation

3.1 Switching on during main operation

After connecting to the main, the UPS will start up immediately. Then connect the equipment to be protected (e.g., computer and monitor) to the outlets on the back of the UPS.

To save electricity, the "Green Power" mode will be activated - automatic shutdown when no power is consumed by the connected equipment (or low consumption level) in the main operation mode or in the "Green Power" mode.

To deactivate "Green mode", turn off the UPS and turn it on again by holding the power button for about 5 s until the triple beep sounds.

WARNING

If the "Green Power" mode is activated, the UPS can automatically shut down during main operation with a fully charged battery and no power consumption by the connected equipment for 2 hours. To turn on the UPS, press the power button again.

If no power is consumed by the connected equipment in the battery operation mode when the "Green Power" mode is activated, the UPS will shut down automatically. When the main power is restored, it will turn on again.

3.2 Switching on in the "ACB operation" mode in the absence of the power supply network

To turn on the UPS when there is no utility power, press and hold the power button for about 3 seconds until the UPS beeps.

3.3 Disconnection

Press the power button for more than 3 seconds until the beeping stops and the UPS shuts down.

3.4 Turning off the sound

The UPS audible alarm in battery mode can be silenced by briefly pressing the power button (except for Low Battery, Overload and Fault modes). To completely disable all

press the power button three times in succession for 1 s in the battery operation mode.

3.5 Self-test function

To start the UPS self-test, briefly press the power button while the UPS is operating on main power.

4 Audible signaling

4.1 Battery operation mode (rare signal)

The UPS will beep when the UPS is operating on battery power. The beeping stops when the UPS switches to normal main operation.

WARNING

The audible signal of the battery operation is emitted at intervals of once every 10 s. It can be deactivated via the software or by briefly pressing the trigger once.

4.2 Low battery charge

In battery operation mode, when the charge drops to a low level (less than 30%), a frequent audible alarm will sound until the UPS shuts down due to a fully discharged battery or returns to normal utility operation.

WARNING

The low battery alarm sounds once every 2 seconds. To turn off all audible alarms completely, press the trigger three times in succession within 1 s in battery operation mode.
To re-enable all audible alarms, press the trigger three consecutive times within 1 s in battery operation mode.

4.3 Overloading

If an overload occurs (the total power of the connected equipment exceeds the maximum UPS power), a frequent audible alarm will sound. The UPS will automatically shut down to protect the unit and the connected equipment. Please disconnect less important equipment from the UPS to eliminate the cause of overload.

WARNING

The UPS overload audible alarm sounds once every 0.5 s. It is not possible to mute the alarm in this case.

4.4 Fault (continuous signal)

A continuous audible alarm sounds when a fault occurs. The UPS will automatically shut down to protect the unit and connected equipment.

4.5 Overheating

WARNING

In normal operation, the UPS provides 100% of the output power. In AVR or battery operation, the UPS monitors the load level and can automatically shut down if the load level is exceeded to protect electronic circuits and connected equipment.
and connected equipment. During continuous operation in voltage stabilization mode, the protection system can shut down the UPS if the load exceeds 50% of the maximum load to prevent transformer overheating. When operating on battery power, the UPS monitors temperature and can automatically shut down to protect the transformer and electronic circuits from overheating.

5 Software and interface. Interface port

5.1 Software

There are different UPS monitoring interface kits for different operating systems.
The interface kit includes a special cable required to convert the UPS signals into signals recognized by a specific operating system. The interface cable connects to the communication port on the back of the UPS and can be connected to a USB or serial port on the computer side. Detailed installation instructions and information on additional functions can be found in the READ.ME file, on the software disk.

5.2 Interface sets

There are different interface kits for monitoring the UPS for different operating systems.
The interface kit includes a special cable required to convert the UPS signals into signals recognized by the specific operating system. The interface cable is connected to the communication port on the rear panel of the UPS and can be connected to a USB or serial port on the computer side. Detailed installation instructions and information on additional functions can be found in the READ.ME file, on the software disk.

5.3 Interface port

The communication port on the rear panel of the UPS is for connection to a computer. It allows the computer to monitor the status of the UPS and the main and in some cases to control the UPS. The main control functions include:

- pop-up information message about a power failure
- saving open files before shutting down the system and turning off the UPS.

Some computers may require special connectors to connect to the interface port or special software. For information about the various interface kits, contact your supplier.

6 Faults and their rectification

6.1 A list of possible faults and their solutions are given in Application A.

Appendix A
(mandatory)
Search for irregularities

Table A.1 - Search for irregularities

Problem	Possible cause	Method of elimination
The UPS will not turn on, indicator does not light up	Not pressing the power button long enough	Press the ON button again
	Battery voltage less than 10 V	Charge the UPS within one day
	UPS malfunction	Contact an Authorized Service Center.
Hours of operation from the battery max. 4 min	The connected equipment consumes less than 30 Watt when powered by an AC power supply	Deactivate "Green mode" (see section 3)
The UPS is powered by the battery at all times	Input power supply voltage is too high/low or missing	Check the input voltage of the mains supply
	Bad contact at the mains input or defective input fuse (optional)	Check the contact quality of the input cable or replace a defective fuse.
	UPS malfunction	Contact an Authorized Service Center.
Battery life is too short	The battery is not fully charged. or not correct	Charge the UPS within 24 hours by connecting it to the power grid
	UPS malfunction	Contact an Authorized Service Center.
Non-continuous sound signal	Overload	Disconnect less important equipment from the UPS

Appendix B
(mandatory)

Technical data

Appendix B.1 - Technical data

Indicator name	Value for article						
	PS-600-01-07-02-P PS-600-01-07-02	PS-800-01-09-02-P PS-800-01-09-02	PS-1000-02-07-04-P PS-1000-02-07-04	PS-1200-02-07-04-P PS-1200-02-07-04	PS-1500-02-09-04-P PS-1500-02-09-04	PS-2000-02-09-04-P PS-2000-02-09-04	PS-3000-04-09-04-P PS-3000-04-09-04
Input parameters							
Voltage, V	220 / 230 / 240 (default 220)						
Frequency, Hz	50 / 60 (auto-adjustment)						
Output parameters							
Voltage, V	220 / 230 / 240 (default 220)						
Frequency, Hz	50 or 60±1 (battery mode)						
Power, VA / W	600 / 360	800 / 480	1000 / 600	1200 / 720	1500 /900	2000 / 1200	3000 / 1800
Switching time to battery, ms	From 2 to 8						
Outlet type for models -XXXX VA-1-XXX-S	C2a according to GOST 7396.1 (IEC 83)						
Number of outlets for models PS- XXXX VA-1-XXX-S	2	2	4	4	4	2	3
Socket types for PS-XXXX models VA-1-XXX-S	C 13 according to GOST IEC 60320-1						
Number of outlets for models PS- XXXX VA-1-XXX	4	4	8	8	8	4	4
AC waveform	Pure sine						
Waveform from the battery	Modified sinusoid						
BATTERY							
Voltage, V	12						

Continuation of Table B.1

Indicator Name	Value for article							
	PS-600-01-07-02-P PS-600-01-07-02	PS-800-01-09-02-P PS-800-01-09-02	PS-1000-02-07-04-P PS-1000-02-07-04	PS-1200-02-07-04-P PS-1200-02-07-04		PS-1500-02-09-04-P PS-1500-02-09-04	PS-2000-02-09-04-P PS-2000-02-09-04	PS-3000-04-09-04-P PS-3000-04-09-04
Number, pcs.	1		2	2		2	7	4
Capacity	7	9	7	7	9	9	9	9
Battery type	Sealed, maintenance-free lead-acid batteries							
Battery charge time	4 (up to 90% level)			4 to 6 (up to 90% level)				
Autonomy time.	4	4	5	4	4	4	2	3
Defense Alarmization								
Types of defense	Against overload, short circuit, battery discharge, battery overcharging							
Battery operation mode	Sound signal every 10 seconds							
Low battery charge	Sound signal every 2 seconds							
Overload	Sound signal every 0,5 seconds							
Fault	Non-continuous sound signal							
Indicators								
AC power supply	The green LED lights up continuously.						Green diodes 2 through 5 light up to indicate the load level	
Battery power	Green LED flashes						Green diodes 2 through 5 blink to indicate the battery charge	
Fault	The red diode is on all the time.							
Mass characteristics for type PS-XXXXVA-1-00X*								
Width, mm	90	90	145	145	140	122	143	
Depth, mm	275	275	343	345	325	327	387	
Height, mm	140	140	161	160	165	190	214	
Weight, kg	4,2	4,6	7,4	7,5	9	12	20	
Mass characteristics for type PS-XXXXVA-1-00X-S*								
Width, mm	90	94	145	145	146	120	145	

Continuation of Table B.1

Indicator Name	Value for article							
	PS-600-01-07-02-P PS-600-01-07-02	PS-800-01-09-02-P PS-800-01-09-02	PS-1000-02-07-04-P PS-1000-02-07-04	PS-1200-02-07-04-P PS-1200-02-07-04		PS-1500-02-09-04-P PS-1500-02-09-04	PS-2000-02-09-04-P PS-2000-02-09-04	PS-3000-04-09-04-P PS-3000-04-09-04
Depth, mm	279	284	345	335	343	330	380	
Height, mm	142	137	162	150	162	190	210	
Weight, kg	4,2	4,6	7,4	7,4	9	10,6	20,1	
Noise level, dB	Less than 40 at a distance of 1 m							
Other parameters								
Supported interfaces	USB, RS-232							
Supported operating systems	Windows, Linux, macOS							
Display	LCD							

Operating conditions: Ambient temperature from 0 °C to plus 40 °C at a humidity of less than 95%. Storage conditions: Room temperature from minus 15 °C to plus 50 °C.
Transportation conditions: Ambient temperature from minus 25 °C to plus 55 °C.

* Deviation from the overall dimensions by ±5 mm is allowed.

Edition 1