

UPS

ST 623 B

ST 1023 B

**UNINTERRUPTIBLE
POWER
SYSTEMS**

ST-SERIES

ICA



**USER MANUAL
(BUKU PETUNJUK PEMAKAIAN)**

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I. SAFETY NOTES / CATATAN KESELAMATAN

I.1. Electrical Safety

- Do not work alone under hazardous conditions.
- High current through conductive materials could cause severe burns.
- Check that the power cord(s), plug(s), and socket are in good condition.
- When grounding cannot be verified, disconnect the equipment from the utility power outlet before installing or connecting to other equipment. Reconnect the power cord only after all connections are made.
- Connect the equipment to a three wire utility outlet (two pole plus ground). The receptacle must be connected to appropriate branch circuit/ mains protection (fuse or circuit breaker). Connection to any other type of receptacle may result in risk of electrical shock.

I.2. Deenergizing Safety

- If the UPS has an internal energy source (battery), the output may be energized when the unit is not connected to a utility power outlet.
- To deenergize a pluggable UPS, press the OFF button or switch to shut the equipment off. Unplug the UPS from the utility power outlet. Disconnect the external batteries where applicable and disconnect the internal battery. Push the ON button to deenergize the capacitors.

I.1. Keselamatan Listrik

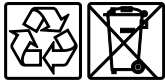
- Jangan bekerja sendiri dalam situasi berbahaya.
- Tegangan tinggi melalui bahan konduktif dapat menyebabkan luka bakar.
- Periksa agar kabel listrik, fitting, dan soket berada dalam kondisi baik.
- Bila grounding tak dapat diverifikasi, putus hubungan peralatan listrik dengan keluaran listrik AC sebelum memasang atau menghubungkannya dengan peralatan lain. Hubungkan kembali dengan kabel listrik hanya jika seluruhnya selesai dihubungkan.
- Hubungkan peralatan ke keluaran listrik AC tiga kabel (dua kutub dan ground). Soket penerima harus terhubung secara benar melalui sirkuit cabang/pelindung utama (sekring atau pemutus arus). Hubungan ke soket penerima dalam bentuk lainnya dapat menyebabkan bahaya sengatan listrik.

I.2. Keselamatan Saat Membuang Arus Listrik

- Jika alat memiliki sumber energi internal (batterai), output mungkin masih mengandung arus listrik walaupun unit tidak terhubung dengan tegangan listrik AC.
- Untuk membuang arus listrik dari UPS yang terhubung, tekan tombol OFF untuk mematikan alat. Putuskan alat dari outlet listrik AC. Lepaskan batterai dan putus batterai internal. Tekan tombol ON untuk membuang listrik di dalam kapasitor.

I.3. Battery Safety

- Repair are to be performed only by qualified personnel.
- Do not dispose of batteries in a fire. The batteries may explode.
- Do not open or mutilate batteries. They contain an electrolyte that is toxic and harmful to the skin and eyes.
- Replace batteries with the same number and type of batteries as originally installed in the equipment.



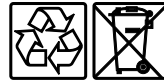
Do not dispose of leftover packaging for this product as household waste: Take it to a collection point for recycling. For information about the nearest recycling facility, contact your local waste disposal authority.

Disposing of the product

The UPS contains internal material that (in case of disposal) are considered TOXIC and HAZARDOUS WASTE, such as electronic circuit boards and batteries. Treat these materials according to the laws applicable referring to qualified service personnel. Their proper disposal contributes to respect the environment and human health.

I.3. Keselamatan Baterai

- Perbaikan hanya dilakukan oleh seorang teknisi yang memiliki kualifikasi.
- Jangan buang baterai ke dalam api, dapat meledak.
- Jangan membongkar baterai. Baterai mengandung elektrolit yang beracun dan dapat merusak kulit dan mata.
- Ganti baterai dengan nomor dan jenis yang sama seperti aslinya terpasang dalam alat.



Jangan buang sisa kemasan produk ini sebagai limbah rumah tangga: Bawa ke tempat pengumpulan untuk didaur ulang. Untuk informasi tentang tempat daur ulang terdekat, hubungi petugas pembuangan limbah setempat.

Pembuangan produk

UPS berisi bahan internal yang (dalam kasus pembuangan) dianggap LIMBAH BERACUN dan BERBAHAYA, seperti papan sirkuit elektronik dan baterai. Perlakukan bahan-bahan ini sesuai dengan undang-undang yang berlaku dengan merujuk pada personel servis yang berkualifikasi. Pembuangan yang tepat berkontribusi untuk menghormati lingkungan dan kesehatan manusia.

II. INTRODUCTION / PENDAHULUAN

UPS (Uninterruptible Power Supplies) can provide full protection against all of power problem for your sensitive equipment ranging from computer, computerized instrument, PABX, facsimile, cash register to all electronic equipment.

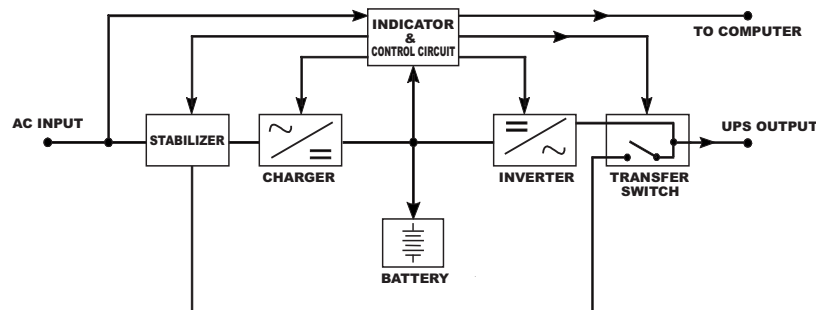
This UPS consists of inverter, batteries, battery charger, control circuit, stabilizer, transfer switch and indicator. When line power is normal, the UPS filters line power input and by pass to output UPS and at the same time the batteries is being charged by battery charger. And when line power fails (off, voltage too low) inverter will supply regulated AC power to the load within ≤ 4 ms transfer time so that the power supplied to the load is uninterrupted. And when line power is normal automatically load gets from line power again.

This UPS is also completed by interface for communication with computer, with operating system Windows and Linux.

UPS (Uninterruptible Power Supplies) dapat melindungi peralatan anda yang rentan terhadap gangguan kelistrikan seperti: komputer, instrument terkomputerisasi, PABX, faksimili, cash register dan peralatan elektronik lainnya.

UPS ini terdiri atas inverter, baterai, pengisi baterai, rangkaian pengendali, stabilisator, saklar-pengalih dan indikator. Saat listrik jala-jala normal, UPS menyaring listrik masukan dan menyalurkannya pada keluaran UPS, pada saat yang sama baterai diisi oleh pengisi baterai. Manakala terjadi gangguan listrik (padam, tegangan terlalu rendah) inverter seketika bekerja dengan waktu alih ≤ 4 ms sehingga pasokan listrik pada beban tidak terganggu/ terputus. Dan bila listrik jala-jala pulih maka otomatis beban mendapat daya listrik jala-jala kembali.

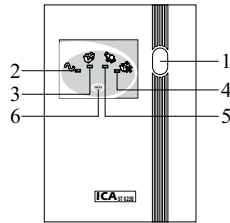
UPS ini dilengkapi interface untuk berkomunikasi dengan komputer, dengan sistem operasi Windows dan Linux.



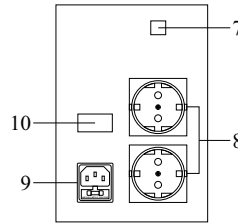
III. TECHNICAL SPECIFICATION / SPESIFIKASI TEKNIK

| ITEM | | UNIT | SPECIFICATION | | REMARKS |
|--------------------------------|--------------------|------|------------------------------|-----------------|--------------------------|
| MODEL | | | ST623B | ST1023B | |
| Capacity | | VA/W | 1200 / 600 | 2000 / 1000 | |
| A C IN | Voltage | V | 160 ~ 250 | | |
| | Frequency | Hz | 50 ± 3 | | |
| | Protection | A | 6,3 | 10 | Fuse |
| DC IN | Voltage | V | 24 | 36 | |
| | Internal Battery | | 2 x 12V, 7AH | 3 x 12V, 7AH | Sealed Lead Acid Battery |
| | Protection | | Fuse | | |
| CHG | Topology | | Constant Voltage | | |
| | Floating Voltage | V | 27,0 | 40,5 | |
| I N V O U T | Wave Form | | Sinewave | | |
| | Distortion | | < 3% THD | | Load 0 ~ 100% |
| | Topology | | Pulse Width Modulation (PWM) | | |
| | Voltage | V | 220 ± 2% | | |
| | Frequency | Hz | 50 ± 1% | | |
| | Efficiency | % | ± 80 | | At Full Load |
| Transfer Time if Input Failure | | ms | ≤ 4 | | On Line |
| Back Up Time | | min | 10 | | At Nominal Load |
| BUZ ZER | AC Input Low/ Fail | | Every 4 seconds | | |
| | AC Input High | | Every 1 second | | |
| | Battery Low | | Every 1 second | | |
| Operating Temperature | | °C | 0 ~ 40 | | |
| Dimension | | mm | 425 x 140 x 200 | 505 x 140 x 200 | D x W x H |
| Weight | | Kg | 14 | 18 | |

IV. FRONT PANEL & REAR PANEL VIEW / *TAMPAK PANEL DEPAN & PANEL BELAKANG*



FRONT PANEL VIEW
ST623B, ST1023B



REAR PANEL VIEW
ST623B, ST1023B

1. Main Switch / *Tombol Daya* : To turn on and off the UPS / *Untuk menghidupkan dan mematikan UPS.*
2. Green Led / *Led Hijau* : Indicate output UPS from line power / *Menunjukkan keluaran UPS dari listrik jala-jala.*
3. Yellow Led / *Led Kuning* : Indicate output UPS from inverter / *Menunjukkan keluaran UPS berasal dari Inverter.*
4. Red Led / *Led Merah* : Indicate low battery / *Menunjukkan keadaan baterai hampir habis.*
5. Red Led / *Led Merah* : Indicate overload / *Menunjukkan keadaan beban lebih.*
6. Inverter Test / *Test Inverter* : To inverter test when line power on / *Untuk melakukan test inverter, saat AC input ada.*
7. USB Port / *Port USB** : For communication between UPS and computer / *Untuk komunikasi antara UPS dengan komputer.*
8. Outlet / *Stopkontak Keluaran*
9. Inlet / *Stopkontak Masukan*
10. Jack RJ11* : Internet modem protection / *Perlindungan modem internet.*

* **Notice :**

Please disconnect all communication connectors before disconnecting main power cord from receptacle.
Putuskan semua konektor komunikasi sebelum mencabut kabel daya utama dari stopkontak.

V. START UP UPS / *MENGHIDUPKAN UPS*

1. Make sure Main Switch on the “off” position and no load is connected to the outlet.
 2. Connect inlet with power cord to a power receptacle with earth ground.
 3. Turn on the UPS by pressing power button. the red led of BATTERY LOW lights for about 2 seconds and will; go out when the battery is in good condition. At the same time the green led of LINE ON light (if line voltage > 170V and < 255V) which indicates UPS output is from line power.
 4. Disconnect inlet from line power, the green led of LINE ON will go out while the yellow led of INVERTER will light on and audible alarm will sound every 4 seconds.
 5. Connect inlet to line power again and then after 2 seconds the yellow led of INVERTER will go out while the green led of LINE ON will light on.
 6. Now your UPS is ready for operation. Connect the equipment that is going to be supplied by the UPS into the UPS.
1. Pastikan tombol pada posisi “off” dan tidak ada beban yang terpasang pada stopkontak keluaran.
 2. Hubungkan steker kabel daya ke stopkontak jala-jala yang mempunyai arde.
 3. Hidupkan UPS dengan menekan tombol daya. Led merah TEGANGAN BATERAI RENDAH akan menyala sekitar 2 detik dan padam kembali bila kondisi baterai baik. Bersamaan dengan itu led hijau LISTRIK JALA-JALA menyala (bila tegangannya > 170V dan < 255V) yang menunjukkan keluaran UPS berasal dari listrik jala-jala.
 4. Cabut steker kabel daya dari stopkontak jala-jala maka led hijau LISTRIK JALA-JALA padam sedangkan led kuning INVERTER akan menyala dan buzzer akan berbunyi setiap 4 detik.
 5. Pasang kembali steker maka sekitar 2 detik kemudian led kuning INVERTER padam sedangkan led hijau akan menyala.
 6. Sekarang UPS siap menjalankan fungsinya. Hubungkan peralatan yang akan diberi pasokan daya pada stopkontak keluaran UPS.

Notes:

The UPS battery should charge for at least 10 hours to ensure sufficient runtime. The unit is being charged whenever it is connected to utility power, and UPS must be turn ON.

Catatan:

Baterai UPS harus di isi sekurangngnya 10 jam untuk memastikan UPS beroperasi dengan memadai. Unit akan mengisi bilamana dihubungkan dengan sumber listrik, dan UPS harus dihidupkan.

VI. OPERATION PROCEDURE / CARA MENGOPERASIKAN

1. Turn on procedure:
 - a. Press on power button at the front panel.
 - b. Turn on the load connected to the outlet.
 2. When the line is interrupted.

In case of line power is interrupted (off or voltage is too low/high), inverter converts the battery power to AC power automatically with transfer time ≤ 4 ms. Buzzer will sound at interval 4 seconds if the line power off or $<170V$ and interval 1 second if the line power $>255V$. When the battery is near the end of its capacity, buzzer will sound continuously. At this time data should be stored and all load shutdown.
 3. Turn off procedure:
 - a. Turn off all the load connected to the outlet.
 - b. Press on power button at the front panel.
1. Cara menghidupkan:
 - a. Tekan tombol daya pada panel depan.
 - b. Hidupkan beban yang terpasang pada stopkontak keluaran.
 2. Saat listrik jala-jala terganggu (padam atau tegangannya terallau rendah/tinggi), inverter langsung bekerja dengan waktu alih ≤ 4 ms mengubah daya baterai menjadi arus listrik AC. Buzzer akan berbunyi putus-putus selang 4 detik, jika listrik jala-jala mati atau $<170V$ dan selang 1 detik jika listrik jala-jala $>255V$. Saat baterai hampir habis buzzer akan berbunyi sinambung. Pada saat ini data harus sudah tersimpan dan semua beban harus sudah dimatikan.
 3. Cara mematikan:
 - a. Matikan semua beban yang terpasang pada UPS.
 - b. Tekan tombol daya pada panel depan.

VII. UPS INSTALLATION / PEMASANGAN UPS

1. Location selection

This UPS should be located in protected place.
 2. Installation

This UPS must be connected to a power receptacle with earth ground.

 - a. Make sure main switch on the off position.
 - b. Connect the UPS to the available outlet.
1. Pemilihan lokasi

Letakkan UPS ini pada tempat yang terlindung.
 2. Pemasangan

UPS ini harus dihubungkan pada stopkontak yang mempunyai hubungan ke bumi (arde).

 - a. Pastikan Main Switch pada posisi off.
 - b. Hubungkan UPS dengan stopkontak yang tersedia.

VIII. TABLE OF INDICATOR STATUS / *TABEL STATUS INDIKATOR*

| STATUS CONDITION | MAIN SWITCH | BUZZER | | | LED | | | | REMARKS |
|---|----------------|--------|------|------|-----|----|----|----|--|
| | | NP | NTPL | NTPC | L1 | L2 | L3 | L4 | |
| Normal | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | |
| No line voltage | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | |
| Line voltage too low | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Check the utility power, make sure between 170-255 vac |
| Line voltage too high | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Check the utility power, < 260 vac |
| Inverter is on at low battery voltage | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Save your work now, the inverter will be cut off |
| 1. Utility power is normal 2. Overload | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | Remove some load from the UPS |

Remarks : 1 : On

0 : Off

L1 : Green Led (Line On)

L2 : Yellow Led (Inverter)

L3 : Red Led (Battery Low)

L4 : Red Led (Overload)

NP : Audible alarm continuous sounds

NTPL : Audible alarm sound every 4 seconds

NTPC : Audible alarm sound every 1 second

Note :

If indicates out of the table, turn off power button and call for service.

IX. TROUBLE SHOOTING / *PETUNJUK KETIDAKNORMALAN*

| SYSTEM | PROBLEM CAUSE | RECOMMENDED SOLUTION |
|---|---|---|
| “Line On” indicator not light. | <ol style="list-style-type: none"> 1. Main voltage < 170 Vac or > 255 Vac. 2. Problem in transfer switch control. | <ol style="list-style-type: none"> 1. Check your mains voltage. 2. If main voltage > 170 vac and < 255 Vac, call for service. |
| Main voltage < 170 Vac, turn on main switch, battery low light on after ± 5 seconds go out, but inverter does not work. | Battery voltage low. | <ol style="list-style-type: none"> 1. Check battery voltage. 2. Charger battery ± 10 hour by kept the mains switch in on position when AC mains normal. 3. Call for service. |
| When AC main failure and inverter does not work. | <ol style="list-style-type: none"> 1. Battery fuse broken. 2. Problem in inverter circuit. | <ol style="list-style-type: none"> 1. Check battery fuse and replace with the same rating. 2. If the fuse blown again, call for service. |
| Communication from UPS to computer fail. | <ol style="list-style-type: none"> 1. Interface cable not connected. 2. Interface cable wrong or broken. 3. Software has not been installed or configure properly. | <p>Install the interface cable. See software manual. If the problem still occur, call for service.</p> |

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Notes :
For further information, please visit "www.icaups.co.id".

Catatan :
Untuk informasi lebih lanjut, silakan kunjungi "www.icaups.co.id".