Toshiba 1000 SERIES User Manual

1
2
3
Table Of Contents
4
5
6
7
8
9
10
11
12
13
14
15
16
17

18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64

PAGE

1

Table of Contents

-

Troubleshooting

-

Bookmarks

Quick Links

1 Diagnostic Tests

2 System Configuration

3 Troubleshooting

4 Battery Servicing

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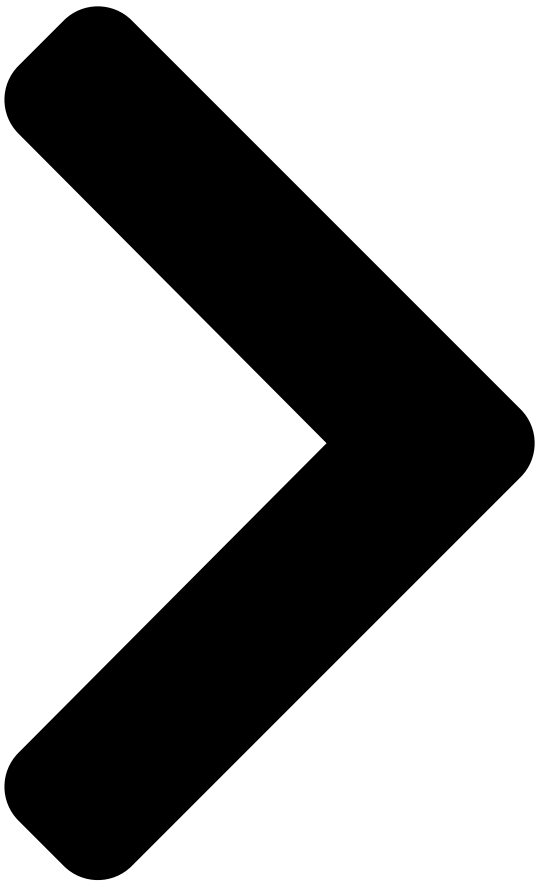

1 000 &1000+ SERIES

UPS USER'S MANUAL

TOSHIBA

Leading Innovation

Table of Contents

Next Page

Related Manuals for Toshiba 1000 SERIES

Laptop Toshiba 1000-S157 User Manual

1000-s157 user's guide (246 pages)

Controller Toshiba V Series User Manual

Integrated controller, loop controller (158 pages)

Laptop TOSHIBA Satellite 1000 Series User Manual

Toshiba satellite portable personal computer (126 pages)

Laptop Toshiba Satellite 1000 User Manual

Toshiba satellite 1000 notebook (126 pages)

UPS Toshiba 1000 Series User Manual

Reliability in motion single phase 1000/1200 va (60 pages)

UPS Toshiba RELIABILITY IN MOTION 1000 Series User Manual

Single phase 1000 va to 3000 va uos (54 pages)

UPS Toshiba UT1A1A010C6 User Manual

User guide (51 pages)

UPS Toshiba 1000 Series Installation Instructions

Toshiba power supply user manual (4 pages)

UPS Toshiba 1000 SEREIS Brochure & Specs

1000 series (2 pages)

UPS Toshiba 1000 Series Specification

Ups rack-mount 2u rail kit (2 pages)

UPS Toshiba 1500 Series Operation Manual

(32 pages)

UPS Toshiba 1500 Plus Series Operation Manual

6/.8/1.0 kva 220v uninterruptible power system (31 pages)

UPS Toshiba UNINTERRUPTIBLE POWER SYSTEM 1600XP Installation And Operation Manual

Single phase - 3.6/6/8/10/14/18/22 kva (90 pages)

UPS Toshiba 1600XP Specifications

Single phase uninterruptible power systems (9 pages)

UPS Toshiba 1800 Series User Manual

1800 series uninterruptible power systems (ups) 1500/2000/2400va (52 pages)

UPS Toshiba 1400 XL PLUS Series Operation Manual

Battery cabinet system single phase - 2.4/3.6/6.0/8.0 kva plus (18 pages)

Summary of Contents for Toshiba 1000 SERIES

Page 1 1 000 &1000+ SERIES UPS USERS MANUAL...

Page 2 Should further information be required or if problems arise which are not covered sufficiently, contact your local Toshiba sales office or (877) 867-8773 or by e-mail at toshibaups@tic.toshiba.com.

Page 3 UNINTERRUPTIBLE POWER SYSTEM Complete the information below for the UPS received. Unless otherwise specified on the warranty card, the warranty period for the UPS or UPS part is 36 months from the shipment date (see TIC Bill of Lading). Unless otherwise

specified on the warranty card, the warranty period for a UPS battery is 24 months from the shipment date (see TIC Bill of Lading).

Page 4: Table Of Contents

Table of Contents Manual’s Purpose and Scope .....V Contacting Toshiba International Corporation’s Customer Support Center ..VII EMC Statements .....VIII General Safety Instructions ..... X Important Safety Instructions .....XIII Instructions Importantes Concernant .....XVII Inspection/Storage/Disposal .....XVIII Installation Precautions .....XX Operating Precautions .....XXII...

Page 5 6.1 RS-232 Standard Interface Port .....18 6.2 Dry Contact Interface (optional card) .....19 6.3 USB Port ..... 20 6.4 EPO Port (emergency power off) .....20 6.5 Network Transient Protector ..... 20 6.6 Load Segments ..... 20 7. User’s Guide to Operations .....21 7.1 UPS Startup and Shutdown .....

Page 6: Manual's Purpose And Scope

Manual’s Purpose and Scope The purpose of this manual is to provide information on how to safely install, operate, and maintain your TIC power electronics product. This manual includes a section of general safety instructions that describes the warning labels and symbols that are used throughout the manual.

Page 7 TOSHIBA is a registered trademark of Toshiba Corporation. All other product or trade references appearing in this manual are registered trademarks of their respective owners. Toshiba International Corporation (TIC) shall not be liable for direct, indirect, special, or consequential damages resulting from the use of the information contained within this manual.

Page 8: Contacting Toshiba International Corporation's Customer Support Center

Contacting Toshiba International Corporation’s Customer Support Center Toshiba International Corporation’s Customer Support Center can be contacted to obtain help in resolving any Uninterruptible Power System problems that you may experience or to provide application information. The center is open from 8 a.m. to 5 p.m. (CST), Monday through Friday. The Support Center’s toll free number is US (877) 867-8773, Fax (713) 896-5212.

Page 9: Emc Statements

EMC Statements FCC Part 15 NOTICE: Pursuant to section 15 of the FCC rules each capacity unit has been tested and the 1000, 1500, and 2000 VA units comply with the conditions of a Class B digital device. The product has been established as offering sufficient protection against dangerous interference for installations in a residential area.

Page 10 Declaration of Conformity Request Units labeled with a CE mark comply with the following standards and directives: Harmonic Standards: EN 62040-1 and EN 62040-2. EU Directives: 73/23/EEC, Council Directive on equipment designed for use within certain voltage limits. 2006/95/EC, Amending Directive 93/68/EEC and 73/23/EEC. 89/336/EEC, Council Directive relating to electromagnetic compatibility.

Page 11: General Safety Instructions

General Safety Instructions DO NOT attempt to install, operate, maintain or dispose of this equipment until you have read and understood all of the product safety information and directions that are contained in this instruction manual. Safety Alert Symbol / Signal Words The Safety Alert Symbol indicates that a potential personal injury hazard exists.

Page 12 Warning — The word WARNING in capital letters preceded by the safety alert symbol indicates that a potentially hazardous situation exists that, if not avoided, could result in death or serious injury to personnel. WARNING Caution/Attention — The word CAUTION or ATTENTION in capital letters preceded by the safety alert symbol indicates that a potentially hazardous situation exists that, if not avoided, may result in minor or moderate injury.

Page 13 Special Symbols Other warning symbols may appear in conjunction with the Danger, Warning, and Caution symbol and are used to specify special hazards. These warnings describe particular areas where special care and/or procedures are required in order to prevent serious injury and possible death. ELECTRICAL HAZARD SYMBOL –...

Page 14: Important Safety Instructions

UPS output and the load input. The maximum ambient operating temperature is 40° C (104° F). Battery servicing should be performed by a qualified Toshiba Representative only. Unauthorized personnel should not service batteries.

Page 15 WARNING Misuse of this equipment could result in injury and equipment damage. In no event will Toshiba Corporation be responsible or liable for either indirect or consequential damage or injury that may result from the misuse of this equipment. CAUTION...

Page 16 CAUTION Do not open or mutilate the batteries. Released electrolyte is harmful to the eyes and skin and could also be toxic. WARNING Disconnect charging source prior to connecting or disconnecting battery terminals. DANGER A battery can present a risk of electrical shock and high short circuit current.

Page 17 —Strict adherence to the following precautions is a requirement when working with batteries— Disconnect charging source prior to connecting or disconnecting battery terminals. To be performed by Qualified Personnel only. Verify that the UPS is off and that the power cord is disconnected from the power source.

Page 18: Instructions Importantes Concernant

Instructions Importantes Concernant LA SÉCURITÉ CONSERVER CES INSTRUCTIONS Cette notice contient des instructions importantes concernant la sécurité. ATTENTION Une battery peut présenter un risque de choc électrique, de brûlure par transfert d' énergie. ATTENTION L' élimination des batteries est règlementèe. Consulter les codes locaux à cet effet. XVII...

Page 19: Inspection/Storage/Disposal

Inspection/Storage/Disposal CAUTION Inspection Upon receipt of the UPS, an inspection for shipping damage should be performed. Use caution when removing the unit from the pallet. Refer to labels or documentation attached to packing material. Uncrating Check the unit for loose, broken, bent or otherwise damaged parts. If damage has occurred during shipping, keep all original crating and packing materials for return to the shipping agent.

Page 20 It is illegal to dump lead-acid batteries in landfills or dispose of improperly. Please help our Earth by contacting the environmental protection agencies in your area, the battery manufacturer, or call Toshiba toll-free at (877) 867-8773 for more information about recycling.

Page 21: Installation Precautions

Installation Precautions CAUTION Install the unit in a well-ventilated location; allow at least 4 inches (10 cm) on all sides for air ventilation and for maintenance. Install the unit in a stable, level and upright position that is free of excessive vibration.

Page 22 12. Connect the output terminals of the UPS to the load (refer to NEC Article 300 – Wiring Methods and Article 310 – Conductors For General Wiring). Size the branch circuit conductors in accordance with NEC Table 310.16. Conductor Routing and Grounding Use separate metal conduits for routing the input power, output power, and control circuits.

Page 23: Operating Precautions

CHARGE LED has gone out before opening the door of the UPS once the UPS power has been turned off. Do not attempt to disassemble, modify, or repair the UPS. Call your Toshiba sales representative for repair information.

Page 24 The UPS could be damaged if the unit is not fully discharged before the breaker is reset. MAINTENANCE NOTE The 1000 Series UPS is not designed for field-level service. All troubleshooting and repairs will be done at the Depot-level. XXIII...

Page 25 XXIV...

Page 26: Introduction

1. Introduction The information provided in this manual covers single phase 1000 – 6000 VA uninterruptible power systems (UPS). Included in this manual is information on the installation, operation, safety precautions, shipping, and storage of the equipment. Installation must be

carried out in accordance with this manual. Electrical installations must also follow local legislation and regulations.

Page 27: General Description

General Description As a double conversion on-line UPS, it is able to supply uninterrupted, clean single-phase power to your critical systems while keeping batteries charged continuously, even if the utility power fails. Other features of the UPS includes • Auto-Restart feature (See detailed explanation on page 4) •...

Page 28: Efficiency Optimizer Function

See Figure 1 for systems applicable to the UPS system. Figure 1. Block diagram • An input filter reduces transients on the main supply. • For maintaining full battery charge, AC power is rectified and regulated in the rectifier feeding power to the inverter and battery converter. •...

Page 29: Auto-Restart

smoothly in order to obtain the greatest efficiency. Irregularities can be detected in less than a second and the on-line mode can be reactivated immediately. Switching back to online mode occurs when the input voltage exceeds ±10% (or ±15% selectable), when the input frequency exceeds ±3Hz, or when no input line is available.

Page 30: System Configuration

System Configuration The UPS device and the internal backup battery make up the system. Depending on the site and load requirements of the installation, available options may be utilized to create a tailored solution. Planning a UPS system should include the following considerations: •...

Page 31: Storage

UPS output with no UPS input. This can pose a shock or fire hazard if the output terminals are shorted. Toshiba is not responsible for any resultant fire or damage if the cold start function is not disabled.

Page 32

The 1000 Series UPS ships with an adhesive patch that covers the ON/OFF Button to prevent accidentally pressing the On/Off Button during shipping. Follow the above procedure to disable Cold Start and close the cover to prevent a fire hazard.

Page 33: Installation

This option can be downloaded from the Toshiba website, www.toshiba.com/ind. Follow the home page menu path to: UPS>> Options/Accessories>> 1000 series>> Software>> Frequency Conversion. ** Note: Installing the frequency converter software upgrade will disable the bypass function.

Page 34: Rear Panel Views

Rear Panel Views 1000VA – 1500VA Tower Rear Panel EXTERNAL EXTERNAL BATTERY BATTERY (120V NEMA) (230V IEC) 2000VA – 3000VA Tower Rear Panel (120V NEMA) (230V IEC)

Page 35

2400VA Tower Rear Panel...

Page 36

2400VA Power Wiring Options The 2400VA unit is hardwired Input and Output only. Use the following wiring guidelines. Note – Use minimum No. 14 AWG or 1.5 mm2, 60°C copper wire and 22 Lb-in Torque force when connecting to Input and Output connection. X1-X3 –...

Page 37

1000 – 1500 VA Rack mount (2U) Rear Panel RM-2U 120V NEMA RM-2U 230V IEC 2000 – 3000 VA Rack mount (2U) Rear Panel RM-2U 120V NEMA RM-2U 120V NEMA with –P1 Option...

Page 38: Connecting To Main Supply, Loads, And External Battery Cabinet

RM-2U 230V IEC 6000 VA Rack mount (UPS – 3U, Battery Pack – 3U) Rear Panel RM-6U 208/240V NEMA (Includes Battery Pack, not shown) Connecting to main supply, loads, and external battery cabinet 1000 – 3000 VA (Except 2400VA and 6000VA) The AC input cable is supplied

with all models except the 2400 VA and 6000 VA.

Page 39 • A familiarity with the UPS parameter settings is required if changing the Battery pack quantity as when using the External Battery Cabinets. • Connect the input cable to the UPS and connect the other end to a grounded outlet. The batteries will charge automatically when connected to the main supply.

Page 40 6000 VA The 6000 VA UPS comes in two sections, a Power Module and the Battery Pack. Each unit is RM-3U tall. The input power is hardwired to the UPS power input terminals. The UPS accepts either 208V or 240V input. The UPS autosenses the input voltage and provides the corresponding output voltage (208V or 240V).

Page 41: Front Panel Settings

Front Panel Settings Listed below are the default settings of the primary UPS parameters. Settings Options Default Remarks 1) O/P VOLT SET 100/110/115/120/127 120 V 120 V (FOR LV series) (output voltage 208/220/230/240 Vac 230 V 230 V (FOR HV series) set) 2) I/P FREQ SET +/- 2%...

Page 42 Settings Options Default Remarks 7) OUTLET GROUP1/GROUP2 Option 1 This is a load-shed feature. SETTING Option 1: 1 On /2 On Option 2: 1 Off /2 On Option 3: 1 Off /2 Off Option 4: 1 On /2 Off 8)BATTERY TEST TEST? Perform battery test immediately...

Page 43: Computer And Alarm Connections

6. Computer and Alarm Connections At the rear of the UPS is an interface that allows direct communication with a computer system (see Figure 2, Pg. 14). There is a RS232 serial data interface, a USB data interface, and an emergency power off switch. The RS232 port and the USB interface cannot be used simultaneously.

Page 44: Dry Contact Interface (Optional Card)

Dry Contact Interface (optional card) DB9 Male Connector Outline (facing connector) Pin # Description I/O Type UPS fail, relay contact, normally open, active close. output Summary alarm, relay contact, normally open, active close. output One of the following signals activate this signal: 1) Output fault 2) Bus fault 3) Over temperature...

Page 45: Usb Port

USB Port Connecting the UPS to a computer using the USB port of the computer requires USB compliant hardware, PC operating system support, and a UPS driver. The RS232 serial port cannot be used when using the USB port. The USB cable is a standard cable and may be purchased separately.

Page 46: User's Guide To Operations

7. User’s Guide to Operations Normal ongoing UPS operation requires little or no user input. Startup and shutdown requirements of the user are discussed in this section. UPS Startup and Shutdown Starting the UPS • Ensure that installation is correct and that the input power cable is connected to a properly grounded outlet.

Page 47: Control Panel Functions

2. “ ” or ENTER is the Enter button. (a) Press and hold the Enter button for at least 2 seconds to read the parameter settings of the UPS. Press the Enter button again to cycle through each successive parameter. (b) Ten seconds of inactivity will return the display to the original status.

Page 48: Normal Display

FAULT or — is on during active UPS internal errors (red). FAULT is accompanied by an audible alarm. Press any of the front panel buttons to cancel the alarm. Status of the UPS, measurements, and alarms are all indicated on the LCD screen. Rack Unit Tower Unit ON-LINE ON-BATT BYPASS FAULT...

Page 49: Ups Meters Display

UPS Meters Display Listed below are the parameters available for viewing from the UPS meters display. Press this button to scroll through the parameters. LCD Message Description O/P VOLT= xxx.xV Shows Output AC Voltage O/P FREQ= xx.x Hz Shows Output Frequency I/P VOL T=

xxx.xV Shows Input AC Voltage I/P FREQ= xx.x Hz...

Page 50

4) Press the Enter button to select a displayed parameter. 5) Press the Function button to scroll through the options for the selected parameter. Press the Enter button to select the setting. 6) If prompted to save the selection, press the Enter button to either confirm or save the selection.

Page 51: Ups Manual Test

UPS Manual Test Manual UPS and Battery tests may be performed from the UPS configuration screen. Tests may be performed when the battery is not being charged. To run the battery test scroll to the “Manual Bat Test” parameter press the Enter button twice.

Page 52: Troubleshooting

7.11 Troubleshooting Displayed on LCD Audible Alarm Alarm Description What You Should Do Output Overload Two Beeps/sec The UPS is overloaded (in Remove loads from the UPS; least to Line Mode). More power most critical. If this solves the required than the UPS can problem, the UPS will return to provide.

Page 53: Maintenance

8. Maintenance With a minimal amount of maintenance you can expect years of satisfactory operation from the UPS unit. The most critical issues for the reliability of the UPS are environmental issues. Ensure that the temperature and humidity are always in accordance with the specifications and keep the area around the unit clean and dust free.

Page 54: Technical Specifications

11500 ft (3500 m) above sea level Three years on electronics Warranty Two years full replacement on battery (See Toshiba warranty policy for full details.) • Output frequency can hard set at 50 or 60 Hz by installing an optional software upgrade. This upgrade enables the user to select a fixed output frequency and simultaneously disables the bypass mode.

Page 55: Power Range 2400 Va (208/240 V)

3300 ft (1000 m) above sea level Warranty Three years on electronics Two years full replacement on battery (See Toshiba warranty policy for full details.) • Output frequency can hard set at 50 or 60 Hz by installing an optional software upgrade. This upgrade enables the user to select a fixed output frequency and simultaneously disables the bypass mode.

Page 56

Power Range 6000 VA (208/240 V) 1000 Series 6kVA Specification Specification Rackmount US 208/240V UT1G1G060C6RKB3 + UT1-BR-0607 True on-line, Double conversion, IGBT Power Factor Correction General Topology Input Certifications Input Voltage (V) Single Phase - 208/240Vin Capacity (VA) 6kVA Frequency...

Page 57

Mute/Unmute Warranty Three years on electronics Two years full replacement on battery (See Toshiba warranty policy for full details.) • Output frequency can hard set at 50 or 60 Hz by installing an optional software upgrade. This upgrade enables the user to select a fixed output frequency and simultaneously disables the bypass mode.

Page 58: Power Range 1000-3000 Va (230 V)

Warranty Three years on electronics Two years full replacement on battery (See Toshiba warranty policy for full details.) Output frequency can hard set at 50 or 60 Hz by installing an optional software upgrade. This upgrade enables the user to select a fixed output frequency and simultaneously disables the bypass mode.

Page 59: Backup Time At Partial Loads

Backup Time at Partial Loads Below is the estimated backup time at various fractions of full load for each 1000 Series model. This table assumes the batteries are fresh and begin with a .full initial charge Load 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%...

Page 60: Warranty Information

Shipment date is determined by date on the TIC Bill of Lading * 24 month full replacement, 36 month pro-rated warranty (5 yr total) Note (4) For 1000 Series UPS the warranty applies if the units are sent and returned (paid for) by the user to/from the Toshiba Plant or a Toshiba

Designated Authorized Service Center. Note (5) Toshiba Service dispatch available at normal business hours.

Page 61: Limitations And Exclusions

(5 conditions below): Valve Regulated Lead Acid (VRLA) Batteries for Toshiba UPS Required Operating, Installation, and Maintenance Conditions Annual Average Temperature is to be 77°F (25 °C) with no greater 1.

Page 62: Model Number

MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. PROCEDURE User must contact TIC via e-mail upsservice@tic.toshiba.com, or phone 1-800-231-1412, no later than 90 days after User’s discovery of occurrence or defect in UPS, UPS part, and/or BATTERY but in no event after the expiration of the respective warranty period.

Page 64

13131 W. Little York Road • Houston, TX 77041 Tel: 713-466-0277 US: 800-231-1412 www.toshiba.com/ups...

This manual is also suitable for:

Ups 1000vaUps 2400vaUps 3000vaUps 1500vaUps 6000vaUps 2000va ... Show all