



Toshiba G8000 SERIES Installation And Operation Manual

480/208 v 100/150 kw

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June 2008

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UnInTerrUpTible power SySTem (UpS)

G8000 SERIES

with Isolated Output

InSTAllATIon and **TOSHIBA** operATIon mAnUAl

480/208 V 100/150 kw

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[UPS Toshiba G8000 SERIES Installation And Operation Manual](#)

480/480 v 80/100/125/150/225/300/500 kw (120 pages)

[Power Supply Toshiba G8000 Series Installation Manual](#)

Uninterruptible power system (ups) (41 pages)

[UPS Toshiba MBSB80-225-43 Dimensions](#)

150kva g8000 series ups 3-breaker maintenance bypass panel (1 page)

[UPS Toshiba G8000MM Series Firmware Upgrade Manual](#)

Industrial bus (protonode) (1 page)

[UPS Toshiba G8000MM Specifications](#)

G8000mm series 100 to 750 kva uninterruptible power system (6 pages)

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(104 pages)

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480/480 v 100/160/225 kva (78 pages)

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480/480 v 1000/1330/1500/1660/2000kva (88 pages)

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Mms kit 480/480 v 80/100/160/225 kva (18 pages)

[UPS Toshiba G9000 Series Installation Manual](#)

Sync kit (22 pages)

Summary of Contents for Toshiba G8000 SERIES

[Page 1](#) UnInTerrUpTible power SySTem (UpS) G8000 SERIES with Isolated Output InSTAllATion and operATion mAnUAl 480/208 V 100/150 kw Document: 59942-003 June 2008 © Copyright 2008 Toshiba International Corporation All rights reserved.

[Page 3](#) UnInTerrUpTible power SySTem (UpS) G8000 SERIES with Isolated Output InSTAllATion and operATion mAnUAl 480/208 V 100/150 kw Document: 59942-003 June 2008 G8000 Series with Isolated output Installation and operation manual...

[Page 4: Qualified Personnel Only](#)

Unintended Usage of Toshiba products listed in this document shall be made at the customer's own risk. NOTICE PLEASE INFORM TOSHIBA INTERNATIONAL CORPORATION OR AUTHORIZED REPRESENTATIVE IN CASE OF INCONSISTENCIES, OMISSIONS, OR QUESTIONS.

[Page 5: Model Number](#)

Unless otherwise specified, the warranty period for the UPS or UPS part is 12 months from the shipment date (see Toshiba International Corporation bill of lading). Unless otherwise specified, the warranty period for a UPS battery is 36 months from the shipment date (see Toshiba International Corporation bill of lading for shipping date). Job nUmber moDel nUmber...

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[Page 9: Introduction](#)

• Safety precautions • Installation precautions please read the G8000 Series operation manual for important instructions on operating the UpS. This manual and the accompanying drawings should be considered a permanent part of the equipment and should be readily available for reference and review. Dimensions shown in the manual are in metric and/ or the english customary equivalent.

[Page 10: General Safety Instructions](#)

Ground Symbol indicates the location of the equipment grounding conductor. Electrical - Voltage & Shock Hazard Symbol indicates parts inside may cause electric shock. Explosion Hazard Symbol indicates parts may explode. G8000 Series with Isolated output Installation and operation manual...

[Page 11: Signal Words](#)

ASD, the equipment being driven, and the hazards involved. • Able to recognize and properly address hazards associated with the application of motor-driven equipment. G8000 Series with Isolated output Installation and operation manual...

[Page 12: Factory Authorized Personnel](#)

Factory Authorized Personnel Factory authorized personnel have been factory trained and certified to install, service, and repair the UPS. Contact the Toshiba Customer Support Center for assistance in locating the factory authorized personnel nearest you. Important Safety Instructions The following contains important instructions that should be followed during the installation, operation, and maintenance of the G8000 Series UpS.

[Page 13: Safety Precautions](#)

Unintended Usage of Toshiba products listed in this document shall be made at the customer's own risk. The application of the UpS without special consideration for equipment that supports human safety and/ or maintain public services may cause serious accidents.

[Page 14: General Maintenance](#)

See Installation Manual: Chapter 8 - Transporting DO NOT tilt the UPS more than 10° from

upright position. Tilting the UPS more than 10° may cause crushing, trapping or other personal injuries. G8000 Series with Isolated output Installation and operation manual...

[Page 15](#) - Do not swing or tilt the UPS when lifting and/or transporting. See manual for complete details. FORKS (4 Ft. Minimum length) WARNING: Risk of tipping. For safe handling, lift from back and sides only (as shown above) G8000 Series with Isolated output Installation and operation manual...

[Page 16: Inspection/Storage](#)

- locations that are subject to extreme temperature changes or high humidity
- locations that are subject to high levels of dust or metal particles
- locations that are subject to excessive vibration
- Inclined floor surfaces

G8000 Series with Isolated output Installation and operation manual...

[Page 17: Installation Precautions](#)

UpS failure may occur if non-authorized technicians attempt to modify or relocate the UpS. please contact Toshiba Customer Support Center if you plan to move or make modifications to the UPS G8000 Series with Isolated output Installation and operation manual...

[Page 18](#) AC Bypass mode and the UPS control panel display verifies the unit is Bypass mode. Switching to the external bypass while the unit is in UpS mode may damage the UpS. G8000 Series with Isolated output Installation and operation manual...

[Page 19](#) 6) DO NOT install the UPS in areas near sources of electrical noise. Ensuring a proper earth ground will reduce the effects of electrical noise and will reduce the potential for G8000 Series with Isolated output Installation and operation manual...

[Page 20](#) 3) Always ground the unit to reduce the potential for electrical shock and to help reduce electrical noise. 4) A separate ground cable should be run inside the conduit with the input power, output power, and control circuits. G8000 Series with Isolated output Installation and operation manual...

[Page 21: Wiring/Connection](#)

ATTENTION Follow the torque criteria for tightening screws. Loose connections may cause fire due to heating. See Chapter 11 - UPS Wiring G8000 Series with Isolated output Installation and operation manual...

[Page 22: Warning Labels](#)

4.3, Transporting/Unpacking, are in the manual packet, and attached to the UpS shipping covering and shipping pallet. ATTENTION Make sure all the warning labels are installed in the appropriate locations. If a label is missing or illegible, contact Toshiba Customer Support Center or an authorized representative. (A) - 48082 (B) - 40308...

[Page 23: Warning Label Locations](#)

Disconnect UpS and electrically test heat sink before touching. pn 40831 FIGURE 6.1 - G8000 WITH ISOLATED OUTPUT UPS WARNING LABELS Warning Label Locations FIGURE 6.2 - 100 KVA UPS WARNING LABELS G8000 Series with Isolated output Installation and operation manual...

[Page 24](#) FIGURE 6.3 - 150 KVA UPS WARNING LABELS G8000 Series with Isolated output Installation and operation manual...

[Page 25: Weight And Dimensions](#)

2146 lb (973 kg) 2236 lb (1014 kg) 150 kVA 3067 lb (1391 kg) 3157 lb (1432 kg)) "8A" SWITCH TERMINAL BLOCKS GROUND BUS FIGURE 7.1 - 100 KVA UPS EXTERIOR DIMENSIONS (INCHES) G8000 Series with Isolated output Installation and operation manual...

[Page 26](#) 79.2 "8A" SWITCH TERMINAL BLOCKS GROUND BUS FIGURE 7.2 - 150KVA UPS EXTERIOR DIMENSIONS (INCHES) G8000 Series with Isolated output Installation and operation manual...

[Page 27: Transporting](#)

UpS. (See Figure 4.1 exterior Handling label.) The UpS may be packed in a crate for extra protection during transportation. Avoid impact or vibration against the UpS during transportation. Do not expose the UpS directly to water. G8000 Series with Isolated output Installation and operation manual...

[Page 28: Transporting By Crane](#)

FIGURE 8.2 - ANGLE MORE THAN 60 FIGURE 8.3 - UNEVEN CABLES FIGURE 8.4 - ACCEPTABLE OPERATION FIGURE 8.5 - UNACCEPTABLE OPERATION FIGURE 8.4 - ACCEPTABLE OPERATION FIGURE 8.5 - UNACCEPTABLE OPERATION G8000 Series Installation manual G8000 Series with Isolated output Installation and operation manual...

[Page 29: 8.2 Transporting By Forklift](#)

< 300kVA > FIGURE 8.6 -TRANSPORTING UPS BY FORKLIFT Base Insert the forks here Secure the forks against base then lift. FIGURE 8.6 -TRANSPORTING UPS BY FORKLIFT G8000 Series Installation manual G8000 Series with Isolated output Installation and operation manual...

[Page 30: Storage/Operating Environment](#)

1) The UpS should not be powered up until the entire operation manual has been read. 2) The voltage of the input power source must be within the rated input voltage range. The input frequency range must be within the rated input frequency range. G8000 Series with Isolated output Installation and operation manual...

[Page 31](#) UpS once the UpS power has been turned off. 8) Do not attempt to disassemble, modify, or repair the UpS. Call your Toshiba sales representative for repair information. 9) Turn the power on only after installing ALL of the covers.

[Page 32: Maintenance Precautions](#)

3) The maximum ambient operating temperature is 86 °F (30 °C) at 1.0 PF, and 104 °F (40 °C) at 0.8 PF. 4) only factory authorized personnel should service the UpS. Contact Toshiba for the nearest authorized service center.

[Page 33: Disposal](#)

It is illegal to dump lead-acid batteries in landfills or dispose of them improperly. please help protect the 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 batteries.

[Page 34: Installation](#)

UPS to move it. Always use a crane, forklift, or pallet jack for transporting and positioning the UPS. pushing/pulling on the sides of the unit to move it may result in damage to the UpS. See Figure 4.1 exterior Handling label. G8000 Series with Isolated output Installation and operation manual...

[Page 35: Unpacking](#)

Unpack the UPS indoors on a paved floor. The UPS should be as close as possible to its final storage location. overhead traveling cranes should be used to unpack any G8000 Series UpS. If an overhead traveling crane is not available, allow enough space for forklift operations to unpack the UpS crate. Then remove the crate.

[Page 36: Anchor Bolts](#)

(551 mm) 4 X 1/2 in. Dia. (12 mm) Anchor Bolt Front 46 1/16 in. (1170 mm) FIGURE 10.2 ANCHOR BOLT INSTALLATION DETAIL FIGURE 10.3 HOLE LOCATIONS/DIMENSIONS ON BOTTOM OF UPS G8000 Series with Isolated output Installation and operation manual...

[Page 37: 11 Ups Wiring](#)

FIGURE 11.1 - EXTERNAL WIRING DIAGRAM An external maintenance bypass may be installed in parallel with the UpS to allow servicing of the G8000 while maintaining power to the UpS load. Contact the Toshiba Customer Service for further information. G8000 Series Installation

manual...

[Page 38: Terminal Blocks, Terminal Bus, And Power Cables](#)

Figure 11.3. 5.3 in. (135 mm) 1.97 in. 1.77 in. (50 mm) (45 mm) 1.75 in. (45 mm) 3 in. (77 mm)
FIGURE 11.3 - TERMINAL BUS DETAIL G8000 Series with Isolated output Installation and operation manual...

[Page 39](#) AwG 2/0 or larger AwG 4/0 or larger 275 in.-lb. (3.2 kg-m) NOTE: MAXIMUM CABLE SIZE IS 350 MCM *ONE BATTERY STRING (SEE NOTE, PAGE 36, IF USING MULTIPLE BATTERY STRINGS G8000 Series with Isolated output Installation and operation manual...

[Page 40: External Breakers](#)

150 kVA 480 V - 300 A / 480 V - 300 A / 208 V - 600 A 500 VDC - 700 A G8000 Series Installation manual G8000 Series with Isolated output Installation and operation manual G8000 Series Installation manual...

[Page 41: Grounding Wire](#)

Use either the top or the earth ground bottom access for the ground wire to connect to the ground buss, but use only one ground wire. FIGURE 11.7 - EARTH GROUND WIRE G8000 Series with Isolated output Installation and operation manual...

[Page 42: Control Wires](#)

Auxiliary A-contact output external epo ext epo (Customer) n.o. Contacts output external epo ext epo (Customer) n.o. Contacts note: All control wiring should be #18 AwG (0.823 mm) or larger. G8000 Series with Isolated output Installation and operation manual...

[Page 43](#) To DC Input Auxillary A- contact UpS Cabinet battery Cabinet ext. epo (Customer) n.o. Contacts FIGURE 11.8 - CONNECTION BETWEEN UPS, BATTERY CABINET & BYPASS BREAKER G8000 Series with Isolated output Installation and operation manual...

[Page 44: Grounding Configuration](#)

The jumper cable should stay in place. See Figure 11.9 for the jumper cable location. UPS Cabinet Input Source LOAD Junper Cable remains in place FIGURE 11.10 - GROUNDING CONFIGURATION FOR NON-GROUNDED DELTA-INPUT G8000 Series with Isolated output Installation and operation manual...

[Page 45: Ups Specifications](#)

Top: 15 3/4 in. (400 mm) 34,121 bTU/h Heat rejection (8598 kcal/h) *Ip20: Foreign objects that are 12 mm (15/32 in.) or larger are prevented from entering the enclosure of the UpS. G8000 Series with Isolated output Installation and operation manual...

[Page 46](#) Top: 15 3/4 in. (400 mm) Heat rejection 51,182 bTU/h (12,897 kcal/h) *Ip20: Foreign objects that are 15/32 in. (12 mm) or larger are prevented from entering the enclosure of the UpS. G8000 Series with Isolated output Installation and operation manual...

[Page 47: Electrical Specification](#)

59 Hz - 61 Hz Frequency Slew rate 1 Hz/Sec over load rating 100% - Continuous / 125% - 10 min. / 150% - 1 min. * Capacity: normal mode (recharge mode) G8000 Series with Isolated output Installation and operation manual...

[Page 48: Operator Interface](#)

"on" when the inverter output is connected to the UpS output. AC oUTpUT leD "on" with AC output connected to the bypass/inverter sources. bypASS leD "on" when the bypass power supplies the load G8000 Series with Isolated output Installation and operation manual...

[Page 49: Key-Switch And Buttons](#)

The key-switch and operating buttons on the graphic display panel are shown in Figure 13.1. See the sections titled "Key-switch" and "operating buttons" for each function. FIGURE 13.1 - GRAPHIC DISPLAY PANEL KEY-SWITCH/OPERATING BUTTONS G8000 Series with Isolated output

Installation and operation manual...

[Page 50: Lcd/Led Indicators](#)

13.2 LCD/LED Indicators FIGURE 13.2 – GRAPHIC DISPLAY PANEL LCD/LED INDICATORS G8000 Series with Isolated output Installation and operation manual...

[Page 51: Lcd Indicators](#)

Displays detailed data when a fault occurs. warning Display Displays detailed data when a warning occurs. NORMAL DISPLAY SCroll Up FAULT DISPLAY SCroll Down WARNIG DISPLAY FIGURE 13.3 - CHANGING SCREENS WITH SCROLL BUTTONS G8000 Series with Isolated output Installation and operation manual...

[Page 52: Normal Display](#)

O/P VOLTAGE output Voltage: Shows the output line-to-line output voltage. VOLT. 208[V] FREQ. 60.0[Hz] O/P CURRENT (R.M.S.) output Current: Shows the rms output current (%) for each phase. 50[%] 50[%] 50[%] G8000 Series with Isolated output Installation and operation manual...

[Page 53](#) Date is displayed in the mm-ddyyyy format. The unit does not calculate daylight savings time. TIME 03-24-06 13:58 Time is displayed in the 24-hour format (e.g. 1:58 p.m. = 1358 Hrs.) G8000 Series with Isolated output Installation and operation manual...

[Page 54: Fault Display](#)

09-09-06 08:05:30 ↓ ANOTHER ITEM FAULTS & WARNINGS This screen is displayed if there are no warnings recorded, or after the reset button is pressed. NO ALARM NO WARNING G8000 Series with Isolated output Installation and operation manual...

[Page 55: Lcd Scroll](#)

O/P CURRENT (R.M.S.) BATTERY 50[%] BACK-UP RATING 10[MIN] 50[%] DISCHARGING 15[MIN] 50[%] O/P CURRENT (PEAK) AC INPUT BYPASS INPUT 50[%] AC I/P-V 480[V] BYP I/P-V 480[V] 50[%] FREQ. 60.0[HZ] FREQ. 60.0[HZ] 50[%] G8000 Series with Isolated output Installation and operation manual...

[Page 56: Operating The Ups](#)

If the UPS produces smoke or smells strange, immediately turn off all AC and DC input circuit breakers. Continued operation may result in fire. Contact Toshiba or Authorized representatives. DO NOT turn off the control power supply switch (11.1) during UPS operation.

[Page 57: Operation Types](#)

3. before starting the UpS, check the power source to make sure AC input power is on. 4. make sure battery breaker's auxiliary A-contact is connected to the terminal block Tb1. G8000 Series with Isolated output Installation and operation manual...

[Page 58: Startup Procedures](#)

"rUn" button for at least 0.5 seconds. ConVerTer leD is "on" and InVerTer INVERTER CONVERTER AC INPUT LED flashes. FLOAT CHARGE EQUAL CHARGE SWITCH BATTERIES DISCHARGE AC OUTPUT BYPASS BYPASS INPUT G8000 Series with Isolated output Installation and operation manual...

[Page 59](#) Toshiba or authorized representatives. If the bypass power source is out of specification, this operation will be inhibited. In order to switch manually, press the "UpS" button for 5 seconds or more. G8000 Series with Isolated output Installation and operation manual...

[Page 60: Switch Power Supply \(Ups→Bypass\)](#)

To change from bypass to UpS supply, EQUAL CHARGE SWITCH BATTERIES DISCHARGE AC OUTPUT follow the Startup Procedures - STEP 5. If the AC switch does not function, contact BYPASS Toshiba or authorized representatives. BYPASS INPUT G8000 Series with Isolated output Installation and operation manual...

[Page 61: Stop](#)

"oFF". BYPASS BYPASS INPUT STEP 3 BYPASS wait until procedure is completed. PRESS 'RUN' SWITCH INVERTER CONVERTER AC INPUT FLOAT CHARGE EQUAL CHARGE SWITCH BATTERIES DISCHARGE AC OUTPUT BYPASS BYPASS INPUT G8000 Series with Isolated output Installation and operation manual...

[Page 62: Complete Shutdown](#)

Be sure to perform the procedure as All LED's are "oFF". specified in this manual. STEP 6 Turn off all breakers at AC output, bypass Input and AC output. Shutdown is completed and UpS is isolated. G8000 Series with Isolated output Installation and operation manual...

[Page 63: Changing Between Float Charge And Equalize Charge](#)

This should be done once every six months if possible. The G8000 UpS will automatically perform the equalize recharge after battery backup operation. G8000 Series with Isolated output Installation and operation manual...

[Page 64: Changing To Float Charge From Protection Charge \(If Applicable\)](#)

(about 24 hours), this mode will automatically be changed back to float charge. Thus it is not usually required to manually change the recharge mode back to the float charge. G8000 Series with Isolated output Installation and operation manual...

[Page 65: Emergency Power Off \(Epo\)](#)

An error or a phenomena related to an error occurred. Since this problem does not directly affect operation, the system switches to synchronized mode. (Guidance) An error or indication of an error has occurred, but operation was not affected. G8000 Series with Isolated output Installation and operation manual...

[Page 66: Faults And Warnings Data Screen](#)

Indicates there is a fault screen before this screen. ↓ Scroll Indicator ↓ Indicates there is a fault screen after this screen. ↓ Indicates there are fault screens before and after this screen. ↓ G8000 Series with Isolated output Installation and operation manual...

[Page 67: Lcd Fault & Warning Displays](#)

1 FUSE blown 09-09-06 08:05:30 FIGURE 15.2 - FAULT DISPLAY UpS Supply AC-Vo 208[V] AC-I o 50[%] FAULTS & wArnInGS 1 UpS oVerloAD 09-09-06 08:05:30 FIGURE 15.3 - WARNING DISPLAY G8000 Series with Isolated output Installation and operation manual...

[Page 68: Fault Messages](#)

AC INPUT UNDERVOLTAGE - AC INPUT VOLTAGE IS TOO LOW AC PHASE ERR AC INPUT PHASE ROTATION ERROR. AC I/P OV AC INPUT OVERVOLTAGE - AC INPUT VOLTAGE IS TOO HIGH. I/P FREQ. ERR AC INPUT FREQUENCY ERROR. G8000 Series with Isolated output Installation and operation manual...

[Page 69](#) TABLE 15.7 - WARNING (GUIDANCE) Item ICD message Indication Description bATT. oVer HeAT battery temperature is too high. 80b1 bATT. UV (Alm) battery voltage is near cutoff voltage. G8000 Series with Isolated output Installation and operation manual...

[Page 70: Lcd Scroll \(W/ Faults Or Warnings\)](#)

Scrolls to the previous screen. SCroll Down Scrolls to the following screen. resets the UpS faults and warnings shown on the ICD and the fault history data stored in reSeT memory. G8000 Series with Isolated output Installation and operation manual...

[Page 71: Restoring Ups Operation](#)

UpS. be sure to contact toshiba customer service if you need to modify or relocate the UpS. Do not open the front and/or rear panels.

[Page 72](#) G8000 Series with Isolated output Installation and operation manual...

