

TOSHIBA

Toshiba 1600EP SERIES Instruction Manual

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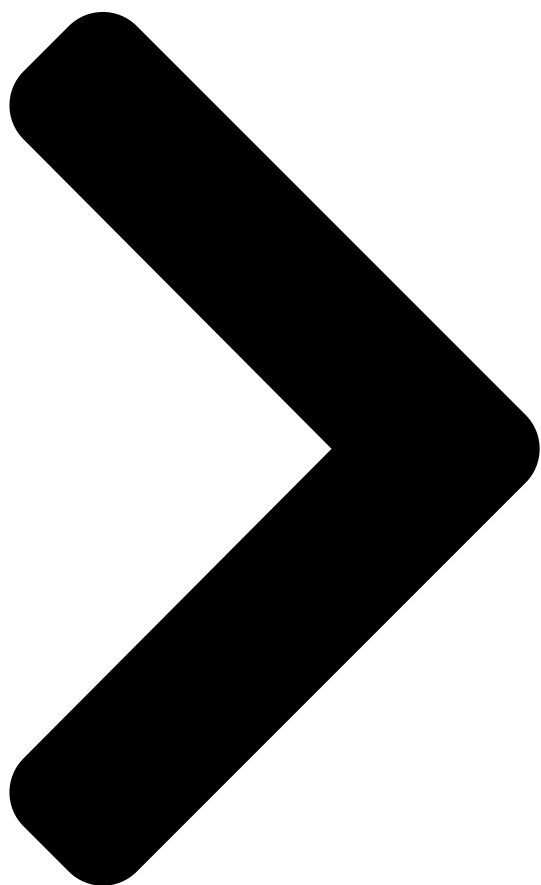
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TOSHIBA

January 2007

Part # 55288-001

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TOSHIBA

1600EP SERIES

INSTRUCTION MANUAL

1600EP SEI

UNINTERRUPTIBLE POWER SYSTEM (UPS)
SINGLE PHASE - 3.6/6/8/10/14/18/22 kVA

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Related Manuals for Toshiba 1600EP SERIES

[Power Supply Toshiba 1600EP Series Instruction Manual](#)

Single phase - 3.6-rohs/3.6/6/8/10/14/18/22 (64 pages)

[UPS Toshiba 1600EP Series Operation Manual](#)

Battery cabinet system single phase - 3.6/6.0 kva (22 pages)

[UPS Toshiba 1600EP Series Operation Manual](#)

Battery cabinet system single phase- 8/10/14/18 kva (16 pages)

[UPS Toshiba 1600EP Series Quick Installation Manual](#)

(4 pages)

[UPS Toshiba 1600 Series Product Specifications](#)

3.6kva 208/240v in - 208/240/120v out tower hardwire solution (3 pages)

[UPS Toshiba 1600 Series Product Specifications](#)

Uninterruptible power systems, 3.6kva 240v in - 240v out tower maintenance bypass solution (2 pages)

[Power Supply Toshiba 1600EP User Manual](#)

Single phase uninterruptible power supply system (2 pages)

[UPS Toshiba 1600 Series Instruction Manual](#)

Single phase - 2.4/3.6/6/8 kva plus (49 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 1600XP SERIES Installation And Operation Manual](#)

8-22kva battery cabinet (22 pages)

[UPS Toshiba 1600XP SERIES Installation And Operation Manual](#)

(140 pages)

[UPS Toshiba 1600XPi Series Installation And Operation Manual](#)

8-22kva battery cabinet (23 pages)

[UPS Toshiba 1600XP Series Quick Installation Manual](#)

(4 pages)

[UPS Toshiba 1600XP SERIES Installation And Operation Manual](#)

1600xp series single phase - 3.6/6/8/10/14/18/22 kva (100 pages)

[UPS Toshiba 1600XPi Series Installation And Operation Manual](#)

Single phase - 3.6/5.2/6/8/10/14/18/22 kva (140 pages)

Summary of Contents for Toshiba 1600EP SERIES

[Page 1](#) TOSHIBA 1600EP SERIES INSTRUCTION MANUAL UNINTERRUPTIBLE POWER SYSTEM (UPS) SINGLE PHASE - 3.6/6/8/10/14/18/22 kVA January 2007 Part # 55288-001 â Manufactured in the USA © Copyright 2006 TOSHIBA International Corporation All rights reserved.

[Page 3](#) The Toshiba products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These Toshiba products are neither

intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or where a malfunction or failure may cause loss of human life or bodily injury ("Unintended Usage").

[Page 4](#) Unless otherwise specified, the warranty period for the UPS or UPS part is 36 months from the shipment date (see Toshiba International Corporation bill of lading). Unless otherwise specified, the warranty period for a UPS battery is 24 months from the shipment date (see Toshiba International Corporation bill of lading).

[Page 5](#) Toshiba International Corporation reserves the right, without prior notice, to update information, make product changes, or discontinue any product or service identified in this publication. Toshiba is a registered trademark of the Toshiba Corporation. All other product or trade references appearing in this manual are registered trademarks of their respective owners.

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[Page 7](#) System Protection Features47 System Protection Functions47 Preventive Maintenance/Parts Replacement49 Preventive Maintenance49 Parts Replacement49 Optional Receptacle Panel Installation Instructions50 External Layouts/Dimensions/Shipping Weights51 Dimensional Data51 Shipping Weights51 Index54 1600EP Series Instruction Manual...

[Page 8: 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. 1600EP Series Instruction Manual...

[Page 9: Signal Words](#)

The word ATTENTION in capital letters without ATTENTION the safety alert symbol indicates a potentially hazardous situation exists, if not avoided, may result in equipment and property damage. 1600EP Series Instruction Manual...

[Page 10: Important Safety Instructions](#)

288Vdc 288Vdc Servicing of the batteries should only be performed by a qualified Toshiba Representative who is knowledgeable of batteries and the required precautions. Keep unauthorized personnel away from batteries. To arrange for battery replacement, contact your nearest Toshiba authorized service center.

[Page 11](#) Misuse of this equipment could result in human CAUTION 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 use of this equipment.

[Page 12: Product Description](#)

The unit's batteries begin to recharge so they will be ready for the next power interruption. Application and Use Toshiba's 1600EP Series of on-line uninterruptible power system (UPS) systems provide continuous computer-grade AC power in a compact, high performance, and energy efficient unit. The UPS unit assures safe and reliable operation of critical offi...

[Page 13: Inspection/Storage/Disposal](#)

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 (800) 231-1412 for more information about recycling. 1600EP Series Instruction Manual...

[Page 14: Installation Precautions](#)

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. WARNING THE METAL OF CONDUIT IS NOT AN ACCEPTABLE GROUND. 1600EP Series Instruction Manual...

[Page 15: Operating Precautions](#)

Wait for at least the minimum time indicated on the label and ensure that the CHARGE LED has gone out before opening the door of the 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.

[Page 16: Ups Connections](#)

AC Output Neutral (8) 12 (1/0) (1/0) (1/0) (1/0) 14.2 Ground 3 and 8 (8) 12 (1/0) (1/0) (1/0) (1/0) 14.2 EPO Switch 14 and 15 Remote Switch 16 and 17 (1 pound-inch = 0.11 Newton-meter) 1600EP Series Instruction Manual...

[Page 17: Communication Interfaces](#)

UPS operation Closed during inverter operation Power failure signal Closed at power failure NOTE Pin "switches" are shown in their inactive states. For example, if battery voltage is low, pin 7 will be connected to pin 5. 1600EP Series Instruction Manual...

[Page 18: Ups Stop Signal Operation](#)

UPS STOP SIGNAL FROM OS continues output UPS output voltage CONTINUES OUTPUT UPS OUTPUT VOLTAGE Checking time CHECKING TIME Temporarily cuts off TEMPORARILY CUTS OFF the output for 10 to THE OUTPUT FOR 10 TO 20 SECONDS 20 secs 1600EP Series Instruction Manual...

[Page 19: Remoteye Network Card](#)

Clear to send This pin is not used RemotEye Network Card The RemotEye is an optional network card for Toshiba UPS. This card slides into a slot located on the back side (pages 52-53) of the UPS. The card provides a network, or LAN-based communication interface for the UPS.

[Page 20: Ups Specifi Cations](#)

< ±8% (Load of 0 to 100 %) Rated Output Current (rms) 15.0 A 25.0 A 33.3 A Max. Peak Output Current 45.0 A 75.0 A 100.0 A Inverter Overload Capacity 125%-30 sec/150%-10 sec Bypass Overload Capacity 125%-10 min./1000%-1 cycle Crest Factor 1600EP Series Instruction Manual...

[Page 21](#) Del/Page Down, Reset/Page Buzzer Volume Low, High, Mute; Selectable by keypad Power Connections Hard wire (Standard) Emergency Power Off Standard (Terminal contacts only) Remote Contacts Standard (INV, BYP, BATT, LB, AC, FLT) RS232 ASCII Interface Standard 1600EP Series Instruction Manual...

[Page 22](#) (***) An initial charge time of 24 hrs. is necessary to obtain proper battery performance level before unit is placed in operation (****) At 6600 ft (2000 m) above sea level, output capacity should be derated by 3%. 1600EP Series Instruction Manual...

[Page 23](#) Rated Output Current (rms) 41.6 A 58.0 A 75.0 A 91.6 A Max. Peak Output Current 125 A 174 A 225 A 275 A Inverter Overload Capacity 125%-30 sec/150%-10 sec Bypass Overload Capacity 125%-10 min./1000%-1 cycle Crest Factor 1600EP Series Instruction Manual...

[Page 24](#) Del/(page down), Reset/(page Buzzer Volume Low, High, Mute; Selectable by keypad Power Connections Hard wire (Standard) Emergency Power Off Standard (Terminal contacts only) Remote Contacts Standard (INV, BYP, BATT, LB, AC, FLT) RS232 ASCII Interface Standard 1600EP Series Instruction Manual...

[Page 25](#) (***) An initial charge time of 24 hrs. is necessary to obtain proper battery performance level before unit is placed in operation (****) At 6600 ft (2000 m) above sea level, output capacity should be derated by 3%. 1600EP Series Instruction Manual...

[Page 26: Operating The Ups](#)

6kVA 8kVA 10kVA 14kVA 18kVA 22kVA Nominal voltage (Vnom) 216Vdc 216Vdc 288Vdc 288Vdc

288Vdc 288Vdc 288Vdc Alarm voltage (Vlow) 192Vdc 192Vdc 246Vdc 246Vdc 246Vdc 246Vdc
246Vdc Shutdown voltage (Vmin) 170Vdc 170Vdc 227Vdc 227Vdc 227Vdc 227Vdc 227Vdc
1600EP Series Instruction Manual...

[Page 27: Starting The Ups](#)

To stop the UPS, press the STOP key approximately 1 second until the LED changes from green to "off". The UPS is now in the bypass mode. To completely stop the UPS, turn the input breaker at the back of the UPS to the "OFF" position. 1600EP Series Instruction Manual...

[Page 28: Battery Recharging](#)

The following chart shows the rated maximum and minimum battery voltages and the charge current for each of the sizes. RATED BATTERY VOLTAGES Model Vmax Vmin Icharge 3.6kVA 245.7 1.0 amp 6kVA 245.7 1.0 amp 8kVA 1.0 amp 10kVA 1.0 amp 14kVA 1.0 amp 18kVA 1.0 amp 22kVA 1.0 amp 1600EP Series Instruction Manual...

[Page 29: Online Mode](#)

Isolation Transformer MCCB Output Input fuse fuse Input Rectifier/ Output Inverter Line Filter Line Filter power Chopper power Surge absorber *Switches are Batteries solid state devices Power flow POWER FLOW IN BYPASS MODE FOR ALL MODELS 1600EP Series Instruction Manual...

[Page 30: Battery Backup Mode \(On Batteries\)](#)

EPO switch is the same whether the UPS unit is in the Bypass *Static switch TRIPPED Isolation Transformer MCCB Output Input fuse fuse Input Rectifier/ Output Inverter Line Filter Line Filter power Chopper power (off) Surge absorber *Switches are Batteries solid state devices Power flow 1600EP Series Instruction Manual...

[Page 31: Audible Alarm Functions](#)

Shift The audible alarm can be silenced by pressing key on the front panel (see page 32). Select AUDIBLE ALARMS Condition Audible Pattern UPS in battery Backup mode UPS low Battery voltage Overload 0.5S 0.5S Fault 1600EP Series Instruction Manual...

[Page 32: Display And Keys](#)

This information is determined by the UPS operating mode and conditions. These messages are shown in the LED displays and LCD screens on pages 33 through 46. 1600EP Series Instruction Manual...

[Page 33: Operating Keys](#)

Lights in amber Warning Flashes in amber Warning LED "OFF" (Stop) Normal UPS (Inverter) in operation Lights in green Schedule/timer setting Execution notice of reserved operation (5 mins. in Flashes in green advance) LED "OFF" No schedule/timer setting 1600EP Series Instruction Manual...

[Page 34: Display Screens](#)

UPS capacity being supplied. Initially, the UPS is in bypass mode, and the following screen will appear: BYPASS OPERATION LOAD###% NOTE: If input voltage is removed while UPS is in the Bypass Mode then the output stops. 1600EP Series Instruction Manual...

[Page 35](#) BATTERY TEST BAT VOLTAGE ##% Once the battery test has concluded, the LCD will return to display of the current UPS operation mode and percent load. It should appear as follows: UPS OPERATION LOAD ###% 1600EP Series Instruction Manual...

[Page 36: Data Display Screens](#)

INTERNAL TEMP ## C 11/4/1998 10:45 TIMER START DATA TO VIEW:SELECT TIMER STOP DATA TO VIEW: SELECT CAL OPER MODE DISABLE WEEKLY SCHEDULE TO VIEW: SELECT SPECIAL OPERATE TO VIEW: SELECT SPECIAL OPERATE TO VIEW: SELECT 1600EP Series Instruction Manual...

[Page 37: Special Display Screens](#)

###.## - ###.## NOTES 1 To access the data setting screens press the "SET/MONITOR" key

from any of the (see page 38) Data Settings Screens. 2 Pressing the "SHIFT/SELECT" and "CANCEL" key returns to the Data Display Screens. 1600EP Series Instruction Manual...

[Page 38](#) TO CHANGE:SELECT INI BAT TST: YES TO CHANGE:SELECT AUTO BATT TST: NO TO CHANGE:SELECT BATTERY TEST DATA SET: SELECT PERFORM BAT TEST PUSH SELECT VOLTAGE ADJ: +0 TO CHANGE:SELECT CLEAR TIMER SET DEFAULT SETTINGS PUSH: SELECT 1600EP Series Instruction Manual...

[Page 39](#) Default setting is NO. TO ACCEPT:SET TO CHANGE: SELECT Monitor Select Shift AUTO RUN: NO AUTO RUN: NO TO ACCEPT:SET TO CHANGE:SELECT Monitor Select Returns to Data Setting Loops through both Screens (with new value possibilities applied) 1600EP Series Instruction Manual...

[Page 40](#) Shift INI BATT TST: NO INI BATT TST: NO TO CHANGE:SELECT TO ACCEPT:SET Monitor Default setting is NO. Select Returns to Data Setting Loops through both Screens (with new value possibilities applied) 1600EP Series Instruction Manual...

[Page 41](#) FOR NEXT:SELECT Monitor Select values applied) At any time all of the preceding operations can be canceled by pressing SHIFT + Loops through all hours CANCEL. Canceling returns to the 'Data of the day Setting Screens' menu. 1600EP Series Instruction Manual...

[Page 42](#) INTERVAL: 2DAY INTERVAL: 2DAY TO ACCEPT: SET TO CHAGNE:SELECT Monitor Select Shift INTERVAL: 99DAY INTERVAL: 99DAY TO ACCEPT: SET Monitor TO CHANGE: SELECT Select Returns to Data Settings Screens (with new value applied) Loops through 99 possibilities 1600EP Series Instruction Manual...

[Page 43](#) Executes battery test timer setting. and returns to Data Settings Screens Shift DEFAULT SETTINGS DEFAULT SETTINGS TO CHANGE:SELECT TO ACCEPT: SET Monitor Select Executes battery test and returns to Data Settings Screens 1600EP Series Instruction Manual...

[Page 44: System Warning Messages](#)

Otherwise, shut down the unit and call for service. Meaning: Advance notice that batteries are nearing the end of the expected lifetime. Amber REPLACE BAT Action: Contact your Toshiba authorized SOON Flashes service center to arrange for battery replacement. Amber Meaning: Batteries at end of life.

[Page 45: System Fault Messages](#)

40° C or OVERHEAT greater.Bypass operation will also cease if overheat condition is not corrected within 1 hr. Flashes from inverter shutdown. Try restarting and if condition re-occurs plan for total shutdown and call for service. 1600EP Series Instruction Manual...

[Page 46: Status Change Indications](#)

Action: None required. Meaning: When the key lock is set or the timer is set to start/stop the UPS by data KEY LOCK:EN communication, pressing the RUN or STOP key displays this message. Action: None required. 1600EP Series Instruction Manual...

[Page 47: Ups Protection System](#)

Bypass OL: fault lamp "on" Fault relay open; Relay Contact Fault relay closed; Inverter OL: Bypass relay closed Alarm Bypass relay closed Bypass OL: Bypass relay open Inverter OL: Yes if bypass is OK Auto-retransfer Bypass OL: No 1600EP Series Instruction Manual...

[Page 48](#) Chopper and inverter are stopped After Fault Inverter OL: Transfer to bypass; Audible Alarm Yes; continuous buzzer Yes; continuous buzzer Visible Alarm Red Fault LED "on" Red Fault LED "on" Relay Contact Fault relay closed; Bypass relay closed Alarm Auto-retransfer 1600EP Series Instruction Manual...

[Page 49: Preventive Maintenance/Parts Replacement](#)

Preventive Maintenance/Parts Replacement Preventive Maintenance Toshiba's 1600EP Series of uninterruptible power systems have been designed to provide years of trouble-free operation requiring a minimum of preventive maintenance. The best preventive measure that the UPS user can take is to keep the area around the unit, particularly the air inlet vents, clean and free

of moisture and dust accumulations.

[Page 50: Optional Receptacle Panel Installation Instructions](#)

Step 3: Mount the receptacle panel Attach the screws removed from the cover plate through the mounting holes of the receptacle panels and back into the UPS mounting points. Mounting Screws Figure 1 Figure 2 1600EP Series Instruction Manual...

[Page 51: External Layouts/Dimensions/Shipping Weights](#)

2.7 in 3.47 in 3.47 in 3.47 in (72 mm) (72 mm) (72 mm) (72 mm) (88 mm) (88 mm) (88 mm)
Shipping Weights SHIPPING WEIGHTS Model Pounds Kilograms 3.6kVA 6kVA 8kVA 10kVA 14kVA
18kVA 22kVA 1600EP Series Instruction Manual...

[Page 52](#) External Layouts * 1600EP Series Instruction Manual...

[Page 53](#) External Layouts * (cont'd) Display Remote Remote Panel Contacts Contacts SNMP
SNMP Port Port Cooling Fans Terminal Block Cover MCCB Front View Back View Back View 14/18
kVA 10 kVA Side View Flow 1600EP Series Instruction Manual...

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