

# TOSHIBA

## **1600EP SERIES**

### INSTRUCTION MANUAL ADDENDUM

UNINTERRUPTIBLE POWER SYSTEM (UPS)  
SPECIFICATIONS  
SINGLE PHASE - UE362L036C61TC1 (3.6-C1)

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Manufactured in the USA

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## Introduction

This addendum to the 1600EP Series User Manual adds information to the existing Specification sheet that is specific to the 3.6kVA-C1 (UE36L036C61TC1) UPS.

## Purpose and Scope

This addendum to the 1600EP Series User Manual adds the specifications for the 3.6kVA-C1 (UE36L036C61TC1) UPS to the existing Specification sheet.

The information in this addendum is to be used in conjunction with the Safety, Installation, and Operation information provided in the 1600EP Series Instruction Manual (55288-001).

## Specifications for the 3.6 kVA-C1 UPS

### Battery Low Voltage Tolerances

UPS Capacity	3.6 kVA-C1
Nominal Voltage ( $V_{\text{NOM}}$ )	144 VDC
Alarm Voltage ( $V_{\text{LOW}}$ )	130 VDC
Shutdown Voltage ( $V_{\text{MIN}}$ )	114 VDC

### Rated Battery Voltage

Model	$V_{\text{MAX}}$	$V_{\text{MIN}}$	$I_{\text{CHARGE}}$
3.6 kVA-C1	163	114	1.0 A

### Dimensions (ref. **1600EP Instruction Manual**, "External Layout," pg. 53)

Model	A (Height)	B (Width)	C (Length)	D (Body height)	E (Unit floor clearance)
3.6 kVA-C1	21 in. (533 mm)	10 in. (2554 mm)	33 in. (838 mm)	18.2 in. (462 mm)	2.8 in. (72 mm)

### Shipping Weight

Model	Pounds	Kilograms
3.6 kVA-C1	325	147

# UPS Specifications

## STANDARD MODELS: 3.6 kVA-C1; 3.6 kVA; 6 kVA; 8 kVA

Unit (Capacity)	3.6 kVA-C1 (3.1 kW) <sup>1</sup>	3.6 kVA (3.1 kW) <sup>1</sup>	6 kVA (5.1 kW) <sup>1</sup>	8 kVA (6.8 kW) <sup>1</sup>
<b>General</b>				
Topology	True On-line			
Certifications	UL, CUL, ISO 9001, NEMA/PE1-1993			
<b>Input Characteristics</b>				
Input Voltage	Single-phase, 208/240 Vac, -30% – +10%			
Input Frequency	45 – 65 Hz (auto-sensing)			
Input Capacity	3.6 kVA		6.0 kVA	8.0 kVA
Input Power Factor	> 0.95 for all loads			
Current THD (linear load)	< 5% total harmonic distortion			
Included AC Input Breaker Rating	30 A/277 V		50 A/277 V	60 A/277 V
<b>Battery Characteristics</b>				
Battery Type	Valve Regulated Lead Acid, Flame Retardant			
Backup time, fully charged @ 0.7 power factor, 77 °F	8 min. minimum <sup>2</sup>	14 min. minimum <sup>2</sup>		7 min. minimum <sup>2</sup>
Backup time, fully charged @ 0.85 power factor, 77 °F	7 min. minimum <sup>2</sup>	10 min. minimum <sup>2</sup>		7 min. minimum <sup>2</sup>
Recharge Time	24 hr. (full), 12 hr. (90%) for internal batteries only <sup>3</sup>			
Battery Voltage (Nominal)	144 Vdc	216 Vdc	216 Vdc	288 Vdc
<b>Output Characteristics</b>				
Output Voltage	Single-phase, 240/208/120 V			
Output Voltage Regulation	± 3%			
Output Frequency	±0.5 Hz/1 Hz/1.5 Hz (factory or authorized service center selectable only)			
AUTO/MAN Frequency	Factory or authorized service center selectable only			
Voltage THD	< 3% for linear load; < 6% for non-linear load			
Common-Mode Noise	< 0.5Vrms			
Rated Load Power Factor	0.85 (0.6 – 1.0) lagging			
Efficiency (ac-dc-ac)	> than 83% (without battery charge)			
Voltage Transient	< ±8% (Load of 0 – 100 %)			
Rated Output Current (rms)	15 A		25 A	33.3 A
Max. Peak Output Current	45 A		75 A	100 A
Inverter Overload Capacity	125% for 30 sec./150% for 10 sec.			
Bypass Overload Capacity	125% for 10 min./1000% for 1 cycle			

**STANDARD MODELS: 3.6 kVA-C1; 3.6 kVA; 6 kVA; 8 kVA (CONT'D)**

Unit (Capacity)	3.6 kVA-C1 (3.1 kW) <sup>1</sup>	3.6 kVA (3.1 kW) <sup>1</sup>	6 kVA (5.1 kW) <sup>1</sup>	8 kVA (6.8 kW) <sup>1</sup>
<b>Environment</b>				
Operating Temperature 59 – 77 °F (15 – 25 °C) recommended	60 Hz		50 Hz	
	32 – 104 °F (0 – 40 °C)		32 – 91 °F (0 – 33 °C)	
Storage Temperature	-4 – 104 °F (-20 – 40 °C)			
Installation Area	To be installed in a well ventilated area free of airborne dust, metal particles or flammable gas, allow at least 4 inches on all sides			
Operating Humidity	30 – 90% non-condensing			
Altitude	< 3300 ft. (1000 m) above sea level <sup>4</sup>			
Acoustical Noise	50 dB (A) maximum @ 1 meter from front panel			
<b>Operation Diagnosis</b>				
Battery Check	Performed on start up, by schedule, on-demand (user configurable)			
Input OV Protection	Standard			
Battery Lifetime	UPS calculates battery replacement time based upon battery ambient temperature (LCD display, LED and beeps)			
Internal Temperature	UPS gives indication of internal temperature, alarm when high temp			
Event Data Storage	64 – Supply Mode, 32 – Backup, 16 – Faults			
<b>Applications</b>				
Switches	Generator compatibility			
<b>Bypass Switch</b>				
Bypass Disable	Static switch < ¼ cycle (50 Hz – 5 ms/60 Hz – 4.16 ms)			
Automatic Retransfer	Factory or authorized service center selectable only			
User Interface	Provided (can be disabled from front panel)			
<b>Real Time Clock</b>				
Schedule Operation	Standard, Minimum 3 days memory backup during power loss			
RUN/STOP Disable	Schedule ON/OFF operation of UPS using communication software			
Autostart	UPS has option for UPS to start automatically when AC is applied			
Remote ON/OFF	Standard, external terminal			
LED Display	4 LED's indicating input/output condition, warning and battery operation			
LCD Screen	16 characters x 2 lines			
UPS Operation: 6 Keys	Run/Stop, Set/Monitor, Shift/Select, Del/Page Down, Reset/Page Up			
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			

**STANDARD MODELS: 3.6 kVA-C1; 3.6 kVA; 6 kVA; 8 kVA (CONT'D)**

Unit (Capacity)	3.6 kVA-C1 (3.1 kW) <sup>1</sup>	3.6 kVA (3.1 kW) <sup>1</sup>	6 kVA (5.1 kW) <sup>1</sup>	8 kVA (6.8 kW) <sup>1</sup>
<b>Mechanical Design</b>				
Enclosure	Enclosure of unit made from sheet metal meeting NEMA1 and UL Type 1			
Size (HxWxD) Inches (max)	21 x 10 x 33	27.5 x 10 x 33		28.25 x 13 x 33.5
Paint System	Powder coating			
Fan Panel	Panel mounted on back of UPS to allow for easy replacement of fans without turning off power to UPS			
<b>Battery System</b>				
Battery Replacement	Slide out battery packs accessible from front of UPS (Factory or authorized service center serviceable only)			
Battery Packs	Designed for battery acid leakage containment with (6) batteries per pack			
<b>Battery Pack Size</b>				
HxWxD)Inches(max)	5 x 7.3 x 18.2			
Battery Pack Quantity	2	3	3	4
Battery Manufacturer	Energysys			
Battery Type	NPX-35			
Toshiba's Part Number for Battery Pack	51896			

- (1) Input/output figures rated for 240 volts. Output ratings given for 0.85 pF are only valid when the input voltage is greater than 204 volts; otherwise, ratings given for 0.70 pF are applicable.
- (2) Battery backup time may vary depending on the operating conditions and ambient temperature at the installation site.
- (3) An initial charge time of 24 hrs. is necessary to obtain proper battery performance level before unit is placed in operation.
- (4) At 6600 ft (2000 m) above sea level, output capacity should be derated by 3%.

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