

Thunder Shield Series

For PC server, security system, SME (small and medium enterprises), and SOHO members

TS400 / TS500 / TS500B / TS650 / TS650B / TS1000 / TS1000B / TS1250 / TS1250B / TS1700 / TS1700B / TS650W / TS1250W / TS650C / TS800C / TS1000C

TS400 / TS500 / TS500B / TS650 / TS650B / TS1000 / TS1000B / TS1250 / TS1250B / TS1700 / TS1700B

Voltage and frequency fluctuations, surges, sags and power cuts are likely to seriously damage your sensitive equipment. These problems occur every day all over the world, and are more frequent in areas with overloaded power grid systems.

The TS Series are the ideal solution to protect your small office and home office systems (SOHO), as well as other electronic devices, which are needed for daily use. Not only is TS a great value for your money, it also is the UPS that is extremely easy to handle. TS fulfills the requirements of many types of users.

With their built-in batteries, most UPS products can do their jobs. However, the batteries would soon deteriorate if used often. This is where the OPTI-UPS TS Series rise above the others. With their wide range AVR, battery usage is limited to very extreme conditions while normal voltage fluctuations are easily controlled by the UPS. When things get tough on the utility source, the TS Series product line is there to give the right amount of battery backup.

The TS Series product line is your insurance to continuous performance and peace of mind!

Features

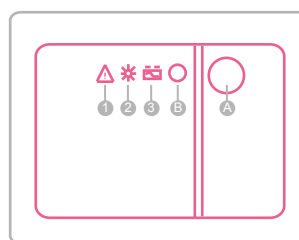
- * Line interactive design
- * Boost and buck AVR (Auto Voltage Regulation)
- * Fully digitized microprocessor control
- * Energy saving function (UPS green mode)
- * 50 / 60 Hz frequency auto sensing and selection
- * Cold start function (DC power on)
- * Short circuit and overload protection
- * RS232 communication port*
- * Tel / Modem / LAN surge protection*
- * History record of power failure events*
- * Smart power management software*
- * Scheduled shutdown & reboot*
- (*Features of TSB models only)

Backup Time (Typical)

TS400	1PC+1LCD	15 mins
TS500 / TS500B	1PC+1LCD	19 mins
TS650 / TS650B	1PC+1LCD	21 mins
TS1000 / TS1000B	1PC+1LCD	33 mins
TS1250 / TS1250B	1PC+1LCD	42 mins
TS1700 / TS1700B	1PC+1LCD	45 mins

Front Panel

TS400 / TS500 / TS500B / TS650 / TS650B / TS1000 / TS1000B / TS1250 / TS1250B / TS1700 / TS1700B



- A) Power ON / OFF
 B) LED
 1) Fault (Continuous Red Light)
 2) AC Mode (Continuous Green Light)
 3) Battery Mode (Flashing Yellow Light)



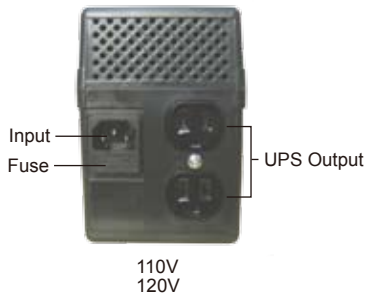
* TS400



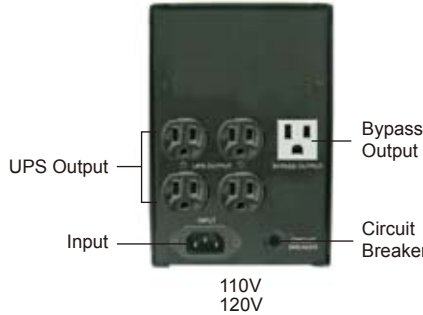
* TS1700

Rear Panel

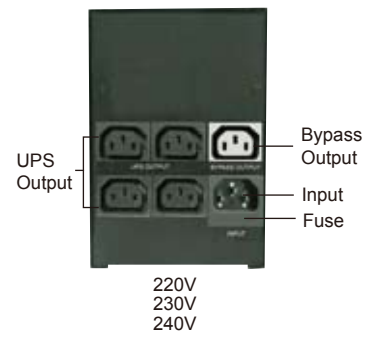
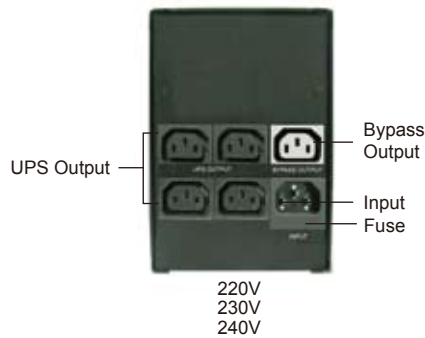
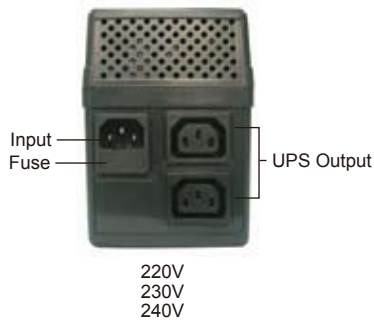
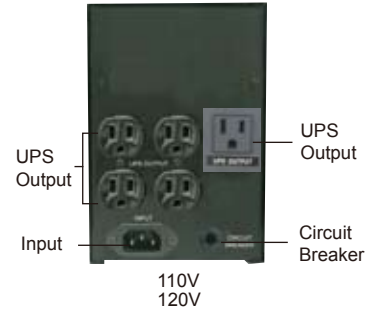
TS400 / TS500 / TS650 / TS1000



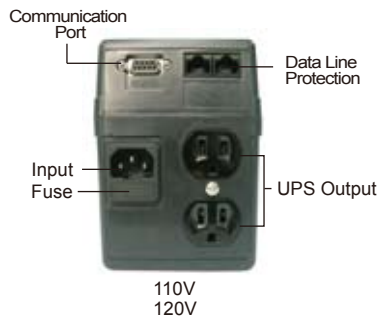
TS1250



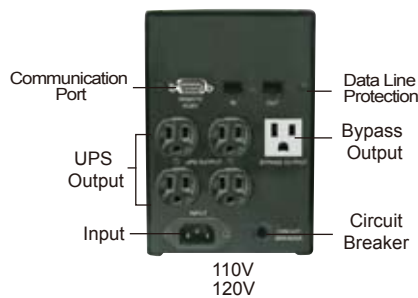
TS1700



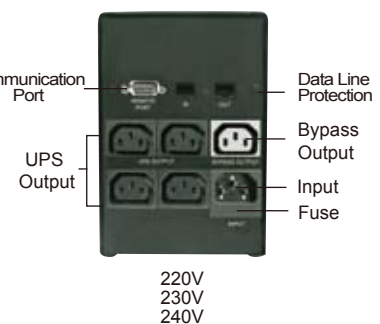
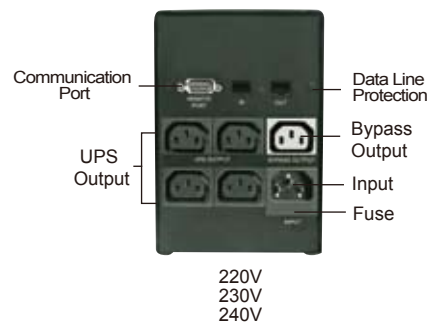
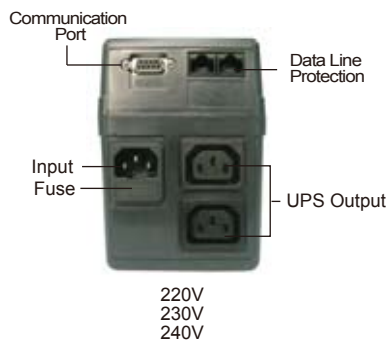
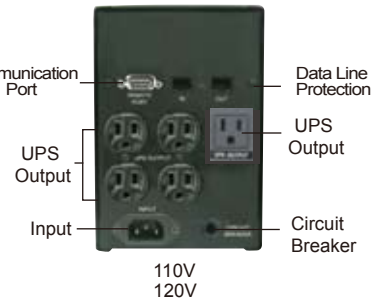
TS500B / TS650B / TS1000B



TS1250B



TS1700B





* TS400 / TS500 / TS650 / TS1000

Specifications

Model Name	TS400	TS500 / TS500B	TS650 / TS650B
Topology		Line-Interactive	
On-battery Output Waveform		Simulated Sine Wave	
Maximum Capacity	400VA / 240W	500VA / 300W	600VA / 360W
Nominal Input Voltage		110 / 120 or 220 / 230 / 240Vac**	
Nominal Input Frequency		50Hz / 60Hz Auto Sensing	
Input Voltage Range		Rated Voltage +/- 25%	
Input Short Protection		Fuse; Circuit Breaker for TS1250 and TS1700 models with US outlets	
Input Inlet		IEC-320-C14	
Nominal Output Voltage		110 / 120 or 220 / 230 / 240Vac**	
Output Voltage Regulation		Rated Voltage +/- 5% (on battery)	
Transfer Time (Typical)		4ms (Typical)	
Start on Battery		Yes	
Auto Restart		Yes	
Auto Voltage Regulation (AVR)		When the AC line voltage is 9% to 25% lower than nominal voltage, AVR raises the voltage by 15% When the AC line voltage is 9% to 25% higher than nominal voltage, AVR lowers the voltage by 13%	
Receptacles		2 Battery backup outlets (IEC-320-C13) / 2 Battery backup outlets(NEMA 5-15R)	
Communication Port	None	RS232 ¹⁾	
Data Line Surge Protection	None	RJ11 / RJ45 ¹⁾	
Surge Energy Rating		460 Joules (IEC outlets models) ; 265 Joules (NEMA outlets models)	
Overload Protection		UPS automatic shutdown if overload exceeds 110% of nominal UPS capacity over 60 seconds or 130% over 3 seconds	
Batteries	12V / 4.5Ah x1		12V / 7.2Ah x 1
Typical Backup Time ²⁾	≈ 15 min	≈ 19 min	≈ 21 min
Recharge Time to 90% Protection		6 Hours	
		Auto discharge protection	
Front Panel LEDs		Power Status / AC mode / Battery Mode / Battery Fault / Overload	
Audible Alarms		Battery Mode / Battery Low / Overload	
Operation Temperature		0~40°C / 32~104°F	
Storage Temperature		-20~60°C / -4~140°F	
Audible Noise		< 40dBA	
Dimensions (Physical / Packing)	(in) 10.2 x 3.8 x 5.3 / 11.8 x 5.5 x 8.6		12.5 x 3.8 x 5.3 / 14.3 x 5.5 x 8.7
(L x W x H)	(mm) 260 x 97 x 135 / 299 x 139 x 218		320 x 97 x 135 / 364 x 139 x 220
Weight (Net / Gross)	(lb) 9.2 / 10.1	13.9 / 15.0	14.3 / 15.4
	(kg) 4.2 / 4.6	6.3 / 6.8	6.5 / 7.0
Approvals		CE; UL; GOST-R	

* Specifications are subject to change without notice.

1) For TS-B models only.

2) Typical backup time represents backup time for load equivalent to one PC and one 15" LCD monitor. Values here are for your reference only.

** See VS1000C on page 6





* TS1250B / TS1700B

Specifications

Model Name	TS1000 / TS1000B	TS1250 / TS1250B	TS1700 / TS1700B
Topology		Line-Interactive	
On-battery Output Waveform		Simulated Sine Wave	
INPUT			
Maximum Capacity	800VA / 480W	1000VA / 600W	1500VA / 900W
Nominal Input Voltage		110 / 120 or 220 / 230 / 240Vac**	
Nominal Input Frequency		50Hz / 60Hz Auto Sensing	
Input Voltage Range		Rated Voltage +/- 25%	
Input Short Protection		Fuse; Circuit Breaker for TS1250 and TS1700 models with US outlets	
Input Inlet		IEC-320-C14	
OUTPUT			
Nominal Output Voltage		110 / 120 or 220 / 230 / 240Vac**	
Output Voltage Regulation		Rated Voltage +/- 5% (on battery)	
Transfer Time (Typical)		4ms (Typical)	
Start on Battery		Yes	
Auto Restart		Yes	
Auto Voltage Regulation (AVR)		When the AC line voltage is 9% to 25% lower than nominal voltage, AVR raises the voltage by 15% When the AC line voltage is 9% to 25% higher than nominal voltage, AVR lowers the voltage by 13%	
Receptacles	2 outlets (IEC 320 C13, NEMA 5-15R)		5 outlets (IEC 320 C13, NEMA 5-15R)
COMMUNICATION INTERFACE			
Communication Port		RS232 ¹⁾	
Data Line Surge Protection		RJ11 / RJ45 ¹⁾	
PROTECTION			
Surge Energy Rating		460 Joules (IEC outlets models) ; 265 Joules (NEMA outlets models)	
Overload Protection		UPS automatic shutdown if overload exceeds 110% of nominal UPS capacity for over 60 seconds or 130% for over 3 seconds	
BATTERY			
User Replaceable Batteries	12V / 34W x 1		12V / 7.2Ah x 2
Typical Backup Time ²⁾	≈ 33 min		≈ 42 min
Recharge Time to 90%		6 Hours	
Protection		Auto discharge protection	
ADVANCED WARNINGS / DIAGNOSTICS			
Front Panel LEDs		Power Status / AC mode / Battery Mode / Battery Fault / Overload	
Audible Alarms		Battery Mode / Battery Low / Overload	
ENVIRONMENTAL			
Operation Temperature		0~40°C / 32~104°F	
Storage Temperature		-20~60°C / -4~140°F	
Audible Noise		< 40dBA	
PHYSICAL			
Dimensions (Physical / Packing)	(in) 12.5 x 3.8 x 5.3 / 14.3 x 5.5 x 8.7		15 x 5.1 x 7.5 / 19.1 x 9.6 x 12.2
(L x W x H)	(mm) 320 x 97 x 135 / 364 x 139 x 220		382 x 130 x 192 / 485 x 244 x 310
Weight (Net / Gross)	(lb) 14.7 / 15.9	28.6 / 32.6	35.0 / 38.0
	(kg) 6.7 / 7.2	13.4 / 14.8	15.9 / 17.3
CONFORMANCE			
Approvals		CE; UL; GOST-R	

* Specifications are subject to change without notice.

1) For TS-B models only.

2) Typical backup time represents backup time for load equivalent to one PC and one 15" LCD monitor. Values here are for your reference only.

** See VS1000C on page 6





* TS650W

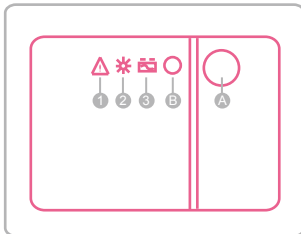
TS650W / TS1250W Wide Range Voltage Input (140V - 300V)

Features

- * Easy installation and operation
- * 2-step boost wide range AVR
- * Electrical noise filter
- * Protection from lightning
- * Compact design

Front Panel

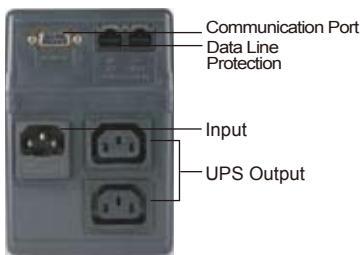
TS650W / TS1250W



- A) Power ON / OFF
 B) LED
 1) Fault (Continuous Red Light)
 2) AC Mode (Continuous Green Light)
 3) Battery Mode (Flashing Yellow Light)

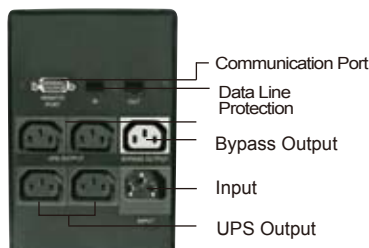
Rear Panel

TS650W



220V
230V
240V

TS1250W



220V
230V
240V

Specifications

Model Name	TS650W	TS1250W
Topology	Line-Interactive	
On-battery Output Waveform	Simulated Sine Wave	
INPUT		
Maximum Capacity (VA/W)	500VA / 300W	1000VA / 600W
Nominal Input Voltage	220/230/240Vac*	
Nominal Input Frequency	50Hz or 60Hz	
Input Voltage Range	140V~300V	
Input Short Protection	Fuse	
Input Inlet	IEC 320 power inlet	
OUTPUT		
Nominal Output Voltage	220V/230/240 Vac*	
Output Voltage Regulation	Rated Voltage +/- 5% (on battery)	
Transfer Time(Typical)	< 10 ms	
Start on Battery	Yes	
Receptacles	IEC 320	
Auto Restart	Yes	
Automatic voltage adjustment (AVR)	Yes (2 Boost Steps)	
COMMUNICATIONS INTERFACE		
Communication Port	RS232	
Data Line Surge Protection	RJ11 / RJ45	
PROTECTION		
Surge Energy Rating	480 Joules	
Overload Protection	UPS POWER OFF IN 60sec (Overload 110% ~ 130%±10%) UPS POWER OFF IN 3sec (Overload > 130% ±10%)	
Short Circuit	UPS output cut off immediately or input fuse protection	
BATTERY		
User Replaceable Batteries	12V/7.2Ah × 1	12V/34W × 2
Recharge Time to 90%	< 6 Hours	
Protection	Auto discharge protection	
ADVANCED WARNINGS/DIAGNOSTICS		
Audible Alarms	Battery Mode / Battery Low / Overload	
ENVIRONMENTAL		
Operation Temperature	0~40°C / 32~104°F	
Storage Temperature	-20~60°C / -4~140°F	
Audible Noise	< 40dBA	
PHYSICAL		
Dimensions (Physical/Packing) (in)	12.5x3.8x5.3 / 14.3x5.5x8.7	15x5.1x7.5 / 19.1x9.6x12.2
(L×W×H) (mm)	320x97x135 / 364x139x220	382x130x192 / 485x244x310
Weight (Net/Gross) (lbs)	12.8 / 14.5	28.6 / 34.6
(kg)	5.8 / 6.6	13.4 / 14.8

* See VS1000C on page 6





* TS650C

* TS800C

* TS1000C

TS650C / TS800C / TS1000C

Features

- * Automatic buck and boost AVR function, wide input voltage 145-280VAC
- * Technical of PWM adjustment and advanced MOSFET power components
- * Ensures stable performance
- * BYPASS outlet available, user can connect equipment of heavy load without damaging UPS
- * Advanced automatic constant charging circuit, prolongs battery life
- * Battery low voltage, overload & short circuit protection
- * Lead-Acid, maintenance free battery inside, provides strong power to users
- ** RS232 & RJ45 Fax/Modem protection

Specifications

Model Name	TS650C	TS800C	TS1000C
Input voltage range	165-275 VAC	165-275 VAC	145-280 VAC
Power Factor	0.6		
Output voltage range	220VAC \pm 10% (On battery)		
Wave form	Simulated sine wave		
Transfer time	\leq 10ms		
Backup time	3-20 minutes (1PC+1LCD monitor 15 inch)		
Quantity of battery	12V/ 7Ah x 1	12V/ 4.5Ah x 2	12V/ 7.5Ah x 2
Charging period	10-16 hours		
Interface	NO	RS232	RS232
Net weight (kg)	5.6	8.5	13.0
Dimension (mm)	390 x130 x215	390 x180 x235	440 x 215 x 285
Working environment	Temperature 0°C~40°C / Humidity 20%~90%		