Power Supplies

TIPS-TM Series

UPS

Complies with Harmonics Current Regulations

FEATURES

- Provides a high overall efficiency of 93% and high-grade output.
- Provides top level output voltage accuracy.
- Compliant with safety standards.
- All mode switching is executed with no electrical discontinuity.
- Its voltage control capacity is capable of handling inputs of 80 to 144V.
- Its performance-for-price ratio exceeds all existing standards.
- Equipped with state-of-the-art self-diagnostic, measurement and alerting functions.
- Provides a multi-faceted and flexible user customization function.
- The advanced function condensation network management software will be prepared by another sales.

APPLICATIONS

Applications that require power supply protection including PC servers, PC network devices, PBXs, ATM exchanges, UNIX servers, UNIX network devices, semiconductor production equipment, various industrial equipment, commercial network devices, and various display devices.

STANDARDS

- EMI standard: Complies with VCCI-A (Standard model)

PART NUMBERS AND RATINGS

FLOOR TYPE

Type	Standard models			
	Output capacity (VA)	Output voltage (V)	Output current (A)	Part No.
750	750	100	7.5	TM750-E1-S
	750	100	7.5	TM750-H1-S
1000	1000	100	10	TM1000-E1-S
	1000	100	10	TM1000-H1-S
1500	1500	100	15	TM1500-E1-S
	1500	100	15	TM1500-H1-S
2000	2000	100	20	TM2000-E1-S
	2000	100	20	TM2000-H1-S
3000	3000	100	30	TM3000-E1-S
	3000	100	30	TM3000-H1-S

RACK MOUNTED TYPE

Type	Standard models			
	Output capacity (VA)	Output voltage (V)	Output current (A)	Part No.
1500	1500	100	15	TM1500-E1-R
	1500	100	15	TM1500-H1-R
3000	3000	100	30	TM3000-E1-R
	3000	100	30	TM3000-H1-R

PRODUCT IDENTIFICATION

TM	750	–	E	1	–	S
(1)	(2)		(3)	(4)		(5)

(1) Series name
(2) Output capacity
(3) Grade code
  E: Economy grade
  H: High grade
(4) Input/Output voltage code
  1: 100V input/100V output
(5) Configuration code
  S: Floor type
  R: Rack mounted type

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SPECIFICATIONS AND STANDARDS

Part No.	TM750-E1-S	TM750-H1-S	TM1000-E1-S	TM1000-H1-S	TM1500-E1-S	TM1500-H1-S	TM1500-E1-R	TM1500-H1-R
Power feeding	High efficiency fixed service inverter system							
Maximum output capacity	0.75kVA/ 525W	0.75kVA/ 525W	1kVA/ 700W	1kVA/ 700W	1.5kVA/ 1.05kW	1.5kVA/ 1.05kW	1.5kVA/ 1.05kW	1.5kVA/ 1.05kW
Overall efficiency	93%	93%	93%	93%	93%	93%	93%	93%
AC input								
Phases and lines	Single phase/two lines							
Input voltage range	AC.80 to 144V		AC.80 to 144V		AC.80 to 144V		AC.80 to 144V	
Input frequency	50 to 60Hz (choose from ±1%, ±3%, ±5% or ±14%)							
AC output								
Rated output current	7.5A	7.5A	10A	10A	15A	15A	15A	15A
Phases and lines	Single phase/two lines							
Load factor	0.97 (rated load factor)							
Output voltage (100V) accuracy during normal operations	±10%	±2%	±10%	±2%	±10%	±2%	±10%	±2%
Waveform and frequency during normal operations	Sine wave. The frequency synchronizes with input frequency during normal operations (choose between automatic switching and frequency synchronization width). 50 to 60Hz ±0.1% during power outage.							
Transient voltage fluctuation (load/with input fluctuation)	Load fluctuation (0 to 100%): 5% max./Input fluctuation ±15%: 5% max.(rated input, resistance load)							
(during switching)	Backup switching/Bypass switching: 10% max. (rated input, resistance load)							
Voltage waveform distortion rate	Linear load: 3% max./Non-linear load: 7% max.							
Overload capacity	3 seconds at 120%/During bypass: 1/2 cycle at 1000%							
Battery								
Capacity/quantity	12V7Ah×2	12V7Ah×2	12V7Ah×3	12V7Ah×3	12V7Ah×4	12V7Ah×4	12V7Ah×4	12V7Ah×4
Charging time*1	Approximately 12 hours (for 90% charge)							
Backup time*1 (Output capacity)	5 min (525W)	10 min (350W)	6 min (700W)	10 min (525W)	6 min (1.05kW)	6 min (1.05kW)	10 min (0.69kW)	10 min (0.69kW)
Support for longer backup times	No	No	No	No	Yes	Yes	Yes	Yes
Cooling								
Type of cooling	Forced air cooling							
Interfaces								
UPS interface	No	Yes	No	Yes	No	Yes	No	Yes
System interface	RS232C/contacts							
Supported standards								
EMI standard	Complies with VCCI-A (Standard model)							
Operating environment/noise								
Ambient temperature/ humidity range	0 to 40°C/30 to 90% (No dew)							
Noise	40dB max.[frontal 1m/A characteristics]							
Dimensions/weight								
External dimensions W×H×D (mm)	120×295×380	120×295×380	120×295×380	120×295×380	150×330×380	150×330×380	480×88×540	480×88×540
Weight (kg)	14	14	16.5	16.5	22	22	26	26
Inputs and outputs								
Input plug cable	NAMA: 5-15P/1.8m length							
Compliant input receptacle	5-15R	5-15R	5-15R	5-15R	5-15R	5-15R	5-15R	5-15R
Input line breaker capacity*2	12A	12A	12A	12A	18A	18A	18A	18A
Shape of output receptacle	Grounded bipolar							
Number of output receptacles	2 lines with 2 receptacles each (4 receptacles)		2 lines with 2 receptacles each (4 receptacles)		2 lines with 3 receptacles each (6 receptacles)		2 lines with 3 receptacles each 6 receptacles)	
Battery/cooling fan								
Battery	Compact long-life sealed lead battery/Hot swappable/Replacement life: 4 to 5 years [in ambient temperature of 25°C]							
Cooling fan	Hot swappable/Replacement life: 4 to 5 years [in ambient temperature of 25°C]							
Installation requirements								
Altitude	1000m max.							
Diagnostic features								
Self diagnostic features	Launches upon startup.							
Battery diagnostic features	Launches every eighth startup or, if operated non-stop for 10 or more days, at the following startup.							

*1 At an ambient temperature of 25°C, under initial characteristics and rated load.

*2 If the commercial power supply line dedicated to this unit is not equipped with a line breaker (double-throw switch type), replace the old breaker or install a new one.

- The UL1778 recognized models are available by the order.

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SPECIFICATIONS AND STANDARDS

Part No.	TM2000-E1-S	TM2000-H1-S	TM3000-E1-S	TM3000-H1-S	TM3000-E1-R	TM3000-H1-R
Power feeding	High efficiency fixed service inverter system					
Maximum output capacity	2kVA/1.4kW	2kVA/1.4kW	3kVA/2.1kW	3kVA/2.1kW	3kVA/2.1kW	3kVA/2.1kW
Overall efficiency	93%	93%	93%	93%	93%	93%
AC input						
Phases and lines	Single phase/two lines					
Input voltage range	AC.80 to 144V	AC.80 to 144V	AC.80 to 144V	AC.80 to 144V	AC.80 to 144V	AC.80 to 144V
Input frequency	50 to 60Hz (choose from ±1%, ±3%, ±5% or ±14%)					
AC output						
Rated output current	20A	20A	30A	30A	30A	30A
Phases and lines	Single phase/two lines					
Load factor	0.97 (rated load factor)					
Output voltage (100V) accuracy during normal operations	±10%	±2%	±10%	±2%	±10%	±2%
Waveform and frequency during normal operations	Sine wave. The frequency synchronizes with input frequency during normal operations (choose between automatic switching and frequency synchronization width). 50 to 60Hz ±0.1% during power outage.					
Transient voltage fluctuation (load/with input fluctuation)	Load fluctuation (0 to 100%): 5% max./Input fluctuation ±15%: 5% max.(rated input, resistance load)					
Transient voltage fluctuation (during switching)	Backup switching/Bypass switching: 10% max. (rated input, resistance load)					
Voltage waveform distortion rate	Linear load: 3% max./Non-linear load: 7% max.					
Overload capacity	3 seconds at 120%/During bypass: 1/2 cycle at 1000%					
Battery						
Capacity/quantity	12V7.2Ah×8	12V7.2Ah×8	12V7.2Ah×8	12V7.2Ah×8	12V7.2Ah×8	12V7.2Ah×8
Charging time*1	Approximately 12 hours (for 90% charge)					
Backup time*1 (Output capacity)	10 min (1.4kW)	10 min (1.4kW)	5.5 min (2.1kW)	5.5 min (2.1kW)	10 min (1.4kW)	10 min (1.4kW)
Support for longer backup times	Yes	Yes	Yes	Yes	Yes	Yes
Cooling						
Type of cooling	Forced air cooling					
Interfaces						
UPS interface	No	Yes	No	Yes	No	Yes
System interface	RS232C/contacts					
Supported standards						
EMI standard	Complies with VCCI-A (Standard model)					
Operating environment/noise						
Ambient temperature/ humidity range	0 to 40°C/30 to 90% (No dew)					
Noise	40dB max.[frontal 1m/A characteristics]					
Dimensions/weight						
External dimensions W×H×D (mm)	190×499×450	190×499×450	190×499×530	190×499×530	480×174×568	480×174×568
Weight (kg)	48	48	52	52	51	51
Inputs and outputs						
Input plug cable	NAMA: L5-30P/1.8m length					
Compliant input receptacle	L5-30R	L5-30R	L5-30R	L5-30R	L5-30R	L5-30R
Input line breaker capacity*2	24A	24A	36A	36A	36A	36A
Shape of output receptacle	Grounded bipolar					
Number of output receptacles	2 lines with 3 receptacles + 1 adapter type (7 receptacles)					
Battery/cooling fan						
Battery	Compact long-life sealed lead battery/Hot swappable/Replacement life: 4 to 5 years [in ambient temperature of 25°C]					
Cooling fan	Hot swappable/Replacement life: 4 to 5 years [in ambient temperature of 25°C]					
Installation requirements						
Altitude	1000m max.					
Diagnostic features						
Self diagnostic features	Launches upon startup.					
Battery diagnostic features	Launches every eighth startup or, if operated non-stop for 10 or more days, at the following startup.					

*1 At an ambient temperature of 25°C, under initial characteristics and rated load.

*2 If the commercial power supply line dedicated to this unit is not equipped with a line breaker (double-throw switch type), replace the old breaker or install a new one.

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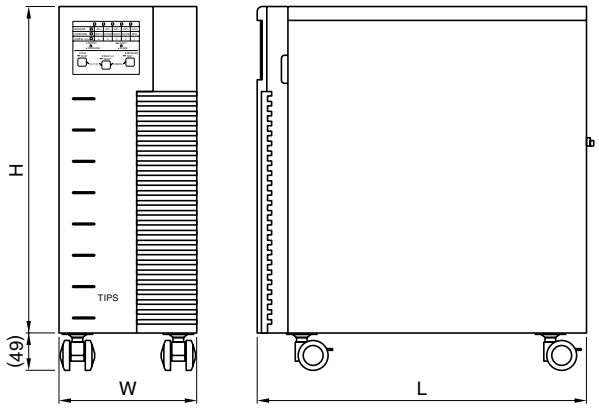
SHAPES AND DIMENSIONS

FLOOR TYPE

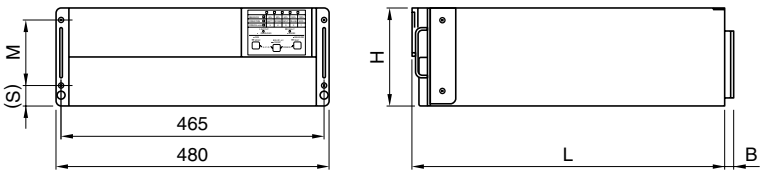


Dimensions in mm

Part No.	H	W	L
TM750	295	120	380
TM1000	295	120	380
TM1500	330	150	380
TM2000	450	190	450
TM3000	450	190	530

• Wheels are not available for TM750, TM1000 and TM1500 models.

RACK MOUNTED TYPE



Dimensions in mm

Part No.	H	W	M	S	B
TM1500	88	510	76.2	5.7	30
TM3000	174	550	117.475	35.75	18

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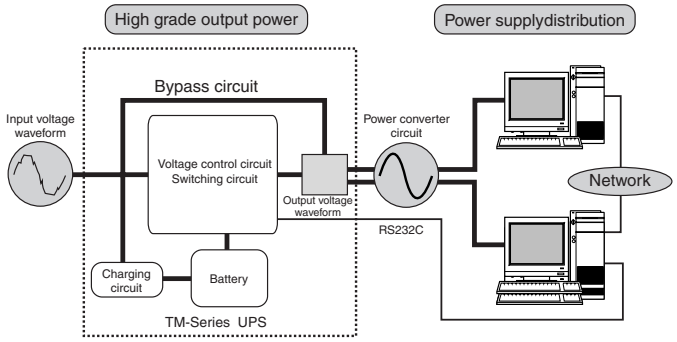
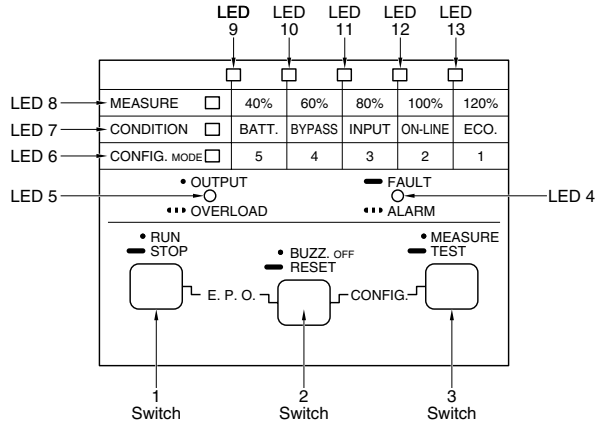
BLOCK DIAGRAM



This system considerably reduces electrical loss during conversion thanks to a unique mechanism that uses either the booster or step-down circuit depending on the condition of the input voltage. In addition to this, a part of the harmonics compensation circuit functions as a highly efficient DC to AC converter circuit during battery operation and after the voltage has been regulated to the specified accuracy at the booster and step-down circuit blocks, as is the case during ongoing operation, it is supplied to connected loads such as computers.
The batteries and cooling fans are hot swappable, that is, they can be replaced when the system is shutdown and with no load. The system also includes an active harmonics filter with excellent suppression performance and an EMI filter for surge protection to protect the network from system shutdowns caused by noise.

PANEL SWITCHES AND THE MATRIX DISPLAY FUNCTION (LED)

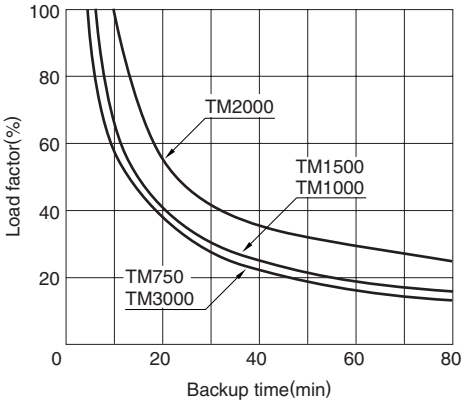


1. Startup/shutdown switch
2. Buzzer/reset switch (function switch)
3. UPS self-diagnosis/battery diagnosis/measurement settings (function switch)
4. LED for fault notification
5. LED indicating the output status
6. When this LED is on, LEDs 9 through 13 indicate the function setting addresses.
7. When this LED is on, LEDs 9 through 13 indicate the UPS status.
8. When this LED is on, LEDs 9 through 13 indicate various measurement levels.

- Press switches 2 and 3 to make settings for the UPS function. Please contact us for details. Output power capacity and backup times (reference).

OUTPUT POWER CAPACITY AND BACKUP TIMES (REFERENCE)

- Values shown are initial values at an ambient temperature of +25°C.
- Actual data may differ from the below depending on the ambient temperature and the age of the system.



BATTERY REPLACEMENTS

Battery lifetime varies widely depending on the operating conditions and the number of times it has been discharged. We recommend that you replace your batteries regularly because, if used beyond their life times, they may not be able to provide backup power during power outages. In addition, fluid leakage may occur, damaging other components or causing power leakage, smoke or fire. The replacement life time of the included battery is approximately 4 years at 25°C. Please contact us for replacement batteries.

BATTERY UNIT FOR EXTENDED BACKUP TIMES (SOLD SEPARATELY)

1.5kVA, 2.0kVA and 3.0kVA models (including rack-mounted models) support expansion batteries that allow you to extend the backup time to up to 60 minutes. By choosing the appropriate number of expansion units, you can secure the optimum backup times for your equipment and systems.

Models that support expansions	Number of expansion units allowed				Size of single unit	Weight
	X1	X2	X3	X5		
TM1500S/R	30 min	60 min	—	—	Same size as the UPS unit	30kg
TM2000S	30 min	60 min	—	—	Same size as the UPS unit	50kg
TM3000S	20 min	40 min	60 min	—	190×499×450mm	50kg
TM3000R	—	20 min	40 min	60 min	Same as TM1500R	30kg

- Backup times shown are at 100% of the rated load factor.

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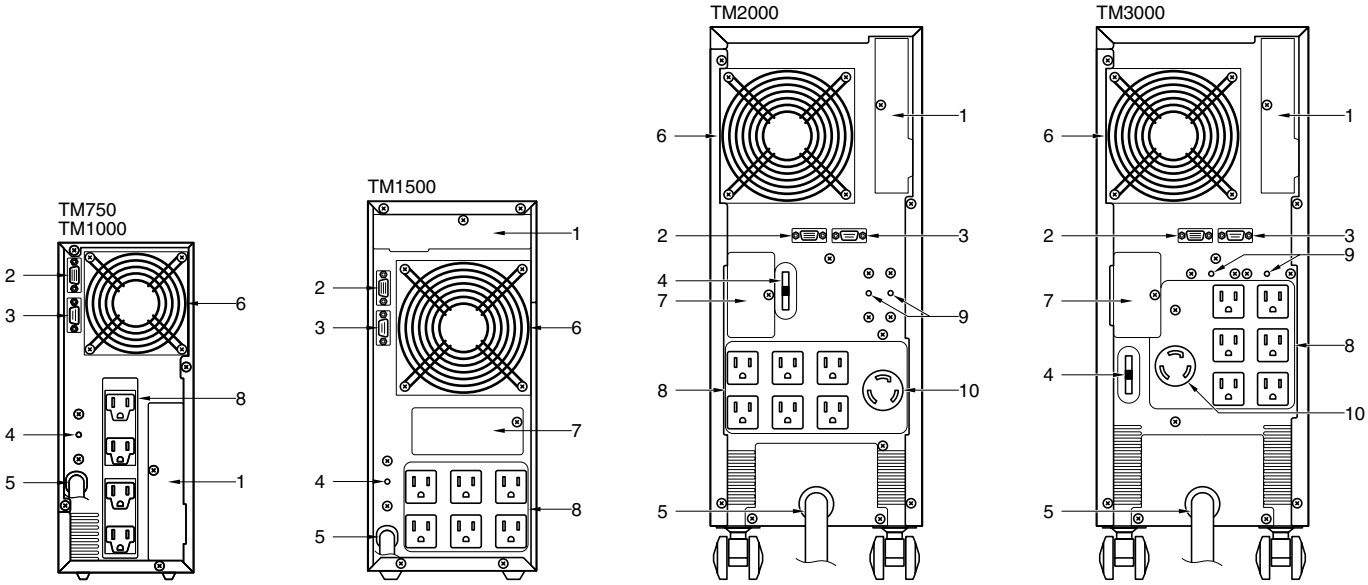
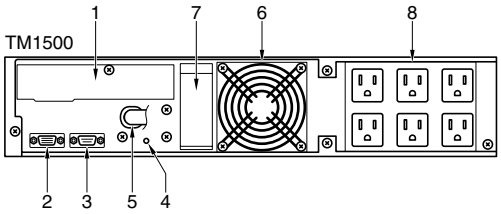
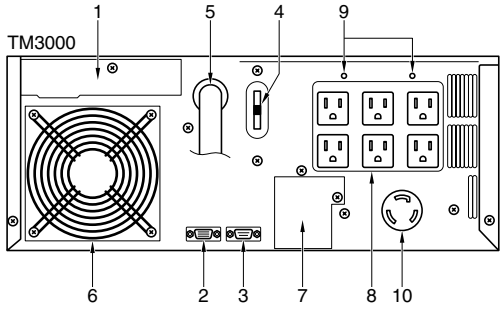
TERMINAL DESIGNATIONS AND FUNCTIONS







REAR SIDE (INPUT/OUTPUT INTERFACE)

1. Interface expansion slot (optional)
2. UPS interface connector
   Multiple UPS devices can be activated/stopped via a dedicated interface cable (optional). (Supports only H□-S types)
3. System interface connector
   Allows the system to communicate with computers etc. via a dedicated interface cable (optional).
4. Input breaker
5. Input cable
   Cable is 1.8m length.
6. Forced air cooling fan
7. Connector for expansion battery.
   Available on TM1500H1-S, TM2000 and TM3000 models.
8. Grounded bipolar output receptacles.
   750, 1000VA models: 2 lines with 2 receptacles each
   1500, 2000 and 3000VA models: 2 lines with 3 receptacles each
9. Output breaker
   This breaker trips if trouble or an overload occurs in the unit.
10. Batch output receptacle (OUTPUT-3)

• CAUTION

Do not connect units that use heaters, such as photocopiers and laser printers, or units that use motors, such as shredders, to a UPS outlet.

Not only will this shorten the life of your UPS, it can cause it to fail.

Please contact us if you are unsure of any of your units.

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"POWER® SCOPE PRO" SOFTWARE

This state-of-the-art optional software includes a wide range of functions for supporting network power management including the SNMP agent which creates an efficient remote UPS monitoring system that provides monitoring functions by unit and block; greatly enhanced automatic shutdown management functions such as the HTTP server function; power supply distribution and a wide range of scheduled operation functions for enhancing system operability; and advanced pager notification and inter-application communication functions.

SUPPORTED OS

- Supports Japanese in all supported OS (Windows, UNIX and Linux)
  Please inquire at the following email address for the latest OS versions supported.
  E-mail: tdkups@mb1.tdk.co.jp

FUNCTIONS

- The operation monitoring function facilitates system management.
  You can monitor the status of different UPSs installed for each unit from any point in your network. This allows you to simplify and reduce the costs of power management, as well as considerably reduce the network administrator's workload.
  - The SNMP agent function.
  - The HTTP server function.
  - Communication between Power Super Pro applications.
- A wide range of shutdown and power supply distribution functions.
  Fully equipped with state-of-the-art automatic shutdown procedures to meet a wide range of control needs.
  - Multi platform shutdown.
  - Application prioritized shutdown.
  - User command prioritized shutdown.
  - Separate settings for emergency and normal shutdowns.
- Implement countermeasures quickly during an event.
  This function supports Internet email sending and pager notification functions during a range of events. You can create a warning system whereby accurate information is quickly sent to the system administrator.
  - Email sending and pager calling function.
  - Broadcasting function within the block.
  - Customize displayed messages.
  - Define and execute user commands.
- A log management function for investigating the cause of problems.
  This function constantly monitors the UPS's status and its alerts, and logs, in real time, all information including power outages, the times and descriptions of various events and the measured quantity of electricity.
  - Event log.
  - Measurements log.
  - Status threshold management.
  - Log file output.
- Detailed scheduling function
  The system features three scheduled operation modes to support automatic and unattended operations.
  - Routine schedule.
  - Annual schedule.
  - Schedule for handling multiple operations performed throughout the day.

SAFETY AND MAINTENANCE SERVICES

Send-back maintenance services (Customers either ship or bring their TIPS to one of our service locations for these services)

- Send-back spot maintenance service (battery replacement not included)
  This maintenance service is provided in response to single work requests from the customer.
- Send-back annual maintenance contract (battery replacement not included)
- Send-back battery replacement service
  We replace the batteries and fans.

ON-SITE MAINTENANCE SERVICES (WE VISIT A SITE THAT YOU SPECIFY)

- On-site spot maintenance service (battery replacement not included)
  The cost of this service includes replacement parts and fieldwork charges excluding the cost for the battery and fan replacement. This maintenance service is provided in response to single work requests from the customer.
- On-site annual maintenance contract (battery replacement not included)
- On-site battery replacement service
  We replace the batteries and fans on-site. Please contact our sales division or your dealer for details on our on-site contracts or services.

SAFETY REMINDERS

Please observe the following when using a TIPS-TM series product.

- To use the units safely and properly, make sure to read the "Instruction Manual" before use.
- Do not use the units for the following applications:
  (1) Medical equipment and devices that have a direct affect on human life.
  (2) Equipment and devices that can cause personal injury.
  (3) Equipment, devices, systems and networks that can cause great social or public damage or disaster, or pose other risks.
  If you are in doubt of whether this applies to your system, please contact us beforehand to find out what special measures are required for installation, operation, maintenance and management.

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REMINDERS REGARDING THE LOCATION OF INSTALLATION

These units are designed to be used in ordinary indoor environments. Please do not install the units where they may be exposed to direct sunlight, wind, rain, high temperatures, high humidity, dusty, saline atmospheres, atmospheres containing corrosive gases, vibration or shock as these elements may degrade the units' functions or cause them to fail.

REMINDERS FOR CONNECTING THE UNITS TO GENERATORS

These units will begin their backup operations if the input power supply's voltage and/or frequency exceeds the specified values. If you will be connecting a unit to a generator, for example, to power the unit during a power outage, please make sure that the generator's output voltage meets the following criteria:

(1)Its frequency accuracy is within the unit's range of synchronization.

(2)Its overall rate of distortion is 15% or lower.

If the generator's output voltage fails to meet either criteria (1) or (2), the unit will begin the backup operation and shutdown once the batteries are fully discharged.

The unit's synchronization to the input voltage can be set to either 1%, 3%, 5%, or 14%.