

TM33-ET SERIES Transformer - based UPS



Online double conversion

- Online Double Conversion design helps to output a pure sine wave, which is immune from the UPS input, so that the load can run steadily
- UPS transfers among different working mode without output interruption, thereby powering the load uninterruptedly

Full DSP control

- Double DSP control makes the whole system more stable and reliable

High power factor

- The output power factor up to 0.9 better matches the load
- The input power factor 0.97 with filter helps to improve the efficiency, reduce the harmonic pollution to the Grid and lower the UPS running cost

Optimized battery management

- Intelligent battery management system and advanced battery auto float/boost charge technology, reduces the frequency of battery maintenance, greatly improves the battery efficiency and extends battery life
- Battery discharge time prediction: The system will display the backup time of battery calculated by discharge current and voltage
- Battery self-test: Battery is automatically tested at regular intervals
- Flexible battery voltage configuration

N+X parallel redundancy

- N+X parallel redundant design, up to 6 units available, makes the configuration more flexible
- Any unit in parallel system fails, the faulty one will automatically cut off the output, and the load will be powered by the remained units

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- It is easy to configure the parallel system just by connecting the parallel cables and doing proper settings
- Non-fixed Master-Slave relationship: Among several UPS in parallel, the unit startup first is Master UPS, the others are Slave. The master and slave may be exchanged

Wide input adaptability

- The range of AC input voltage is (380/400/415Vac) (-25%/+20%), minimizing transfer to battery mode, thereby greatly prolonging the battery life
- Wide input frequency ranging from 45Hz to 65Hz, ensures stability of UPS while generator connected

Power walk in

- Specially designed power walk in function, in which rectifier of each unit in parallel system will be turned on in sequence at intervals to avoid the sudden load on the generator, thereby reducing the cost of the generator required

Generator mode

- Set the maximum output power of the generator when a smaller one than needed is employed to extend the battery duration time. In this case, the load is supplied by both the generator and battery

LBS synchronization

- Synchronize the output of the two independent UPS systems (Single unit or parallel) even when the two systems are operating on different modes (Bypass/Inverter) or on battery

Multi-protection

- Self-diagnosis function will take place before start-up for safety
- Multi-protection: AC input under/over voltage, overload, short-circuit, over-current, over bus voltage, over-temperature, fan failure, auxiliary power failure, battery under voltage, battery over-charge and so on

EPO function

- A concave red EPO button with transparent cover is embodied in the LCD control panel for emergency power off

User-friendly network management

- Chinese/English LCD and LED mimic diagram: Real time operation parameters and status (7 inch touch screen optional)
- RS232 & RS485 communication ports: For local monitor with corresponding software, both can support MODBUS rotocol
- SNMP adapter (Optional): For remote monitor through network
- Dry contacts (10-160kVA optional) for additional monitoring:
 - a) UPS on Inverter
 - b) Mains input failure
 - c) Remote EPO
 - d) Battery low voltage alarm
 - e) UPS fault
 - f) UPS alarm
 - g) UPS on battery
 - h) UPS on bypassNote:d)--h) optional

Technical Specifications:

	TM33-ET									
Model	ET10	ET20	ET30	ET40	ET60	ET80	ET100	ET120	ET160	
Capacity	10kVA/9kW	20kVA/18kW	30kVA/27kW	40kVA/36kW	60kVA/54kW	80kVA/72kW	100kVA/90kW	120kVA/108kW	160kVA/144kW	
INPUT										
Operating voltage range	380/400/415Vac (−25%/+20%), (3Ph+PE)									
Operating frequency range	50/60Hz (±5%)									
Power factor	≥0.97 *									
OUTPUT										
Output voltage	380/400/415Vac (±1%), (3Ph+N+PE)									
Output frequency	50/60Hz (±0.05%)									
Harmonic distortion (THDv)	≤2% (Linear load)						≤1% (Linear load)			
Crest factor	3:1 (Max)									
Efficiency	88%	89%		90%		90.5%		92%	92.5%	
BYPASS										
Rated voltage	380/400/415Vac, (3Ph+N+PE)									
Rated frequency	50/60Hz									
Voltage protection range	Upper limit: +20% (+10%, +15%, +20% adjustable) Lower limit: −40% (−10%, −20%, −30%, −40% adjustable)									
Frequency protection range	±10% (±2.5%, ±5%, ±10%, ±20% adjustable)									
BATTERY										
Battery voltage	384Vdc (360~384Vdc)									
SYSTEM FEATURES										
Transfer time	0 ms (Line mode→ Battery mode)									
Overload	Load≤110%/60min; ≤125%/10mins; ≤150%/1 min, to Bypass									
LED display	Input, Inverter, Bypass, Battery, Output, Status									
LCD display	I/O voltage, frequency, power, power factor, battery voltage, current, battery status, load percentage, UPS status, history record									
Communication interface	RS232, RS485, EPO, Dry contact (Optional), SNMP card (Optional)									
Optional	Harmonic filter, SNMP adapter, LBS cables, battery temperature sensor, Bypass current-sharing inductor									
ENVIRONMENTAL										
Operating temperature	0~40°C									
Storage temperature	-25~55°C									
Humidity range	0~95% (Non-condensing)									
Altitude	<1500m									
Noise level	<58dB					<68dB				
PHYSICAL										
Dimension W×D×H (mm)	350×650×1050			430×830×1100			720×690×1400	720×690×1400 (6P) 1515×830×1600 (12P)	890×790×1600 (6P) 1515×830×1600 (12P)	890×790×1600 (6P) 1400×1000×1900 (12P)
Net weight (kg)	145	165	204	255	320	450	556 (6P)/ 1300 (12P)	693 (6P)/ 1450 (12P)	780 (6P)/ 1645 (12P)	
Shipping weight (kg)	160	180	225	280	345	485	591 (6P)/ 1370 (12P)	738 (6P)/ 1520 (12P)	825 (6P)/ 1775 (12P)	
STANDARDS										
Safety	IEC/EN 62040-1; IEC 62477-1									
EMC	IEC/EN 62040-2 (IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11, IEC 61000-2-2)									
Performance	IEC/EN 62040-3									

* With optional filter

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Technical Specifications:

	TM33-ET					
Model	ET200	ET300	ET400	ET500-12P	ET600-12P	ET800-12P
Capacity	200kVA/180kW	300kVA/270kW	400kVA/360kW	500kVA/450kW	600kVA/540kW	800kVA/720kW
INPUT						
Operating voltage range	380/400/415Vac (-25%/+20%), (3Ph+PE)					
Operating frequency range	50/60Hz (±5%)					
Power factor	≥0.97 *					
OUTPUT						
Output voltage	380 / 400 / 415Vac (±1%), (3Ph+N+PE)					
Output frequency	50 / 60Hz (±0.05%)					
Harmonic distortion (THDv)	≤1% (Linear load)					
Crest factor	3:1 (Max)					
Efficiency	92.5%	93%		93.5%		94%
BYPASS						
Rated voltage	380/400/415Vac, (3Ph+N+PE)					
Rated frequency	50/60Hz					
Voltage protection range	Upper limit: +20% (+10%, +15%, +20% adjustable) Lower limit: -40% (-10%, -20%, -30%, -40% adjustable)					
Frequency protection range	±10% (±2.5%, ±5%, ±10%, ±20% adjustable)					
BATTERY						
Battery voltage	384Vdc (360~408Vdc)			480Vdc	600Vdc	
SYSTEM FEATURES						
Transfer time	0 ms (Line mode → Battery mode)					
Overload	Load ≤110%/60min; ≤125%/10mins; ≤150%/1 min, to Bypass					
LED display	Input, Inverter, Bypass, Battery, Output, Status					
LCD display	I/O voltage, frequency, power, power factor, battery voltage, current, battery status, load percentage, UPS status, history record, settings					
Communication interface	RS232, RS485, EPO, Dry contact, SNMP card (Optional)					
Optional	Harmonic filter, SNMP adapter, LBS cables, battery temperature sensor, Bypass current-sharing inductor					
ENVIRONMENTAL						
Operating temperature	0~40°C					
Storage temperature	-25~55°C					
Humidity range	0~95% (Non-condensing)					
Altitude	<1500m					
Noise level	<72dB			<75dB		
PHYSICAL						
Dimension W×D×H (mm)	1200×800×1600 (6P) 1400×1000×1900 (12P)	1400×1000×1900 (6P) 1640×1000×1900 (12P)		2580×1000×1900	2800×1040×1900	3280×1040×1900
Net weight (kg)	1030 (6P)/1715 (12P)	1560 (6P)/2395 (12P)	1640 (6P)/2510 (12P)	3510	3950	4950
Shipping weight (kg)	1130 (6P)/1845 (12P)	1690 (6P)/2545 (12P)	1770 (6P)/2665 (12P)	3730	4250	5245
STANDARDS						
Safety	IEC/EN 62040-1; IEC 62477-1					
EMC	IEC/EN 62040-2 (IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11, IEC 61000-2-2)					
Performance	IEC/EN 62040-3					

* With optional filter

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2. Data above are typical values for reference only, not as a basis for engineering design



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