### **TECLOMAN**

# **1500V Energy storage converter**

TPCS-1250

TPCS-1375

TPCS-1575

TPCS-1725

TPCS-2500





## Product Overview

The 1500V energy storage converter is a wide DC voltage range AC/DC bi-directional converter with high power density and small footprint, which is suitable for high-power grid-connected and off-grid applications.



#### **Efficient conversion**



Three-level topology, maximum efficiency of 99%.



Intelligent air-cooling, no derating at 50°C.



Wide DC operating voltage range, 1500V for full load operation.



### Safe And Reliable



High protection class (IP54, C3).



DC side 250kA short circuit current breaking capacity.



Linkage with BMS and EMS to support multiple system protection.



#### **Application Flexibility**



Four-quadrant operation, with battery charge/discharge management function.



VSG, VF, PQ and other operating modes.



Support black start.



#### Grid Support



With a frequency, source network and load fast scheduling function.



With inertia, frequency, voltage, and other dynamic support functions.



Max. Voltage	Model	TPCS-1250	TPCS-1375	TPCS-1575	TPCS-1725	TPCS-2500	
Voltage Range         800-1500V         800-1500V         915-1500V         1000-1500V         1000-1500V           Max. Current         1935A         1935A         1935A         3000A           Rated Power         1250kW         1375kW         1575kW         1725kW         2500kW           Max. Capacity         1375kW         1513kW         1513kW         1898kW         3000kW           Max. Current         1375kW         1513kW         1898kW         3000kW           Max. Current         1375kW         1513kW         1898kW         3000kW           Access Method         1513kW         1513kW         1898kW         3000kW           Access Method         1513kW         1513kW         1898kW         2000kW           Reactive Power Range         550V         630V         690V         690V           Voltage Range         550V         550V         550V 630V         690V         690V           Prequency Range         550V         550V         530V 630V         690V         690V           Prequency Range         550V         550V         530V         690V         690V           Voltage Vallation         550V         550V         630V         690V         690V	DC						
Voltage Range         800-1500V         800-1500V         915-1500V         1000-1500V         1000-1500V           Max. Current         1935A         1935A         1935A         3000A           Rated Power         1250kW         1375kW         1575kW         1725kW         2500kW           Max. Capacity         1375kW         1513kW         1513kW         1898kW         3000kW           Max. Current         1375kW         1513kW         1898kW         3000kW           Max. Current         1375kW         1513kW         1898kW         3000kW           Access Method         1513kW         1513kW         1898kW         3000kW           Access Method         1513kW         1513kW         1898kW         2000kW           Reactive Power Range         550V         630V         690V         690V           Voltage Range         550V         550V         550V 630V         690V         690V           Prequency Range         550V         550V         530V 630V         690V         690V           Prequency Range         550V         550V         530V         690V         690V           Voltage Vallation         550V         550V         630V         690V         690V	Max. Voltage			1500V			
Max. Current         1935A         1935A         1935A         1935A         3000A           Grid         Correct         Serial Power         1250kW         1375kW         1575kW         1725kW         2500kW           Max. Capacity         1375kW         1515kW         1738kW         1898kW         3000kW           Max. Current         1515kW         1738kW         1898kW         3000kW           Max. Current         373L         393L         3000kW           Access Method         101solated         393L         300kW         300kW         690V         690V<		800~1500V	800~1500V		1000~1500V	1000~1500V	
Gride         Caread Power         1250kW         1375kW         1575kW         1725kW         2500kW           Max. Capacity         1375kW         1513kW         1733kW         1898kW         3000kW           Max. Current         12443A@45°C / 1587A@30°C         0924 &5°C / 2510A@30°C         20924 &5°C / 2510A@30°C           Access Method         393L         393L         500         20924 &5°C / 2510A@30°C           Racetive Power Range         -100%+100%+         500         690V         690V         690V           Racet Woltage         550V         550V         630V         600°C / 599V         600°C / 759V           Frequency Range         484-605V         484-605V         554-693W         600°C / 759V         600°C / 759V           Frequency Range         ±5H2         500°C / 759V         600°C / 759V			1935A				
Max. Capacity         1375WA         1513WA         1733WA         1898WA         3000WA           Max. Current         1443A @ 45°C / 1587A @ 30°C         6992A @ 45°C / 2510A @ 30°C           Access Method         3P3L         5900 @ 690V         600V         690V         690	Grid						
Max. Current 1443A	Rated Power	1250kW	1375kW	1575kW	1725kW	2500kW	
Access Method   SP3L     Isolation Method   Unisolated     Reactive Power Range   100%-100%-100%     Reactive Power Range   550V   550V   630V   690V   690V     Voltage Range   484-605V   484-605V   554-693V   607-759V   607-759V     Frequency   501t2/60H2     Frequency   501t2/60H2     Trequency Range   ±5Hz     Total Harmonic Distortion Rate Of Current   43% (Rated power)     Power Factor   0.9.99 (Rated power)     Change/discharge Conversion Time   100ms     Charge/discharge Conversion Time   100ms     Ch	Max. Capacity	1375kVA	1513kVA	1733kVA	1898kVA	3000kVA	
Access Method   Spail	Max. Current						
Ractive Power Range         -1,00%-1,00%           Rated Voltage         550V         530V         630V         690V         607-759V         6000	Access Method						
Rated Voltage         550V         550V         630V         690V         690V           Voltage Range         484-605V         484-605V         554-693V         607-759V         607-759V           Frequency         50±/56Hz         554-693V         607-759V         607-759V           Frequency Range         ± 55Hz         50±/56Hz         60±/56Hz         50±/56Hz         60±/56Hz	Isolation Method						
Voltage Range         484-605V         484-605V         554-693V         607-759V         607-759V           Frequency         50Hz/60Hz	Reactive Power Range		-100%~100%				
Frequency Range	Rated Voltage	550V	550V	630V	690V	690V	
Frequency Range         ±5Hz           Total Harmonic Distortion Rate Of Current         <3% ( Rated power )	Voltage Range	484~605V	484~605V	554~693V	607~759V	607~759V	
Total Harmonic Distortion Rate Of Current         ≤3% (Rated power)           Power Factor         >0.99 (Rated power)           Charge/discharge Conversion Time         <100ms	Frequency			50Hz/60Hz			
Power Factor         >0.99 (Rated power)           Charge/discharge Conversion Time            Offegrid           Rated Voltage         \$50V         \$50V         \$690V         \$690V           Voltage Deviation          \$690V         \$60V	Frequency Range						
Charge/discharge Conversion Time         <100ms           Off-grid         Rated Voltage         550V         630V         690V         690V           Voltage Deviation         <1%UN (Linear balanced load)	Total Harmonic Distortion Rate Of Current		≤3% (Rated power)				
Off-grid         Rated Voltage         550V         550V         630V         690V         690V           Voltage Deviation         <1%UNI (Linear balanced load)	Power Factor		•				
Rated Voltage         550V         550V         630V         690V         690V           Voltage Deviation         <1%UN (Linear balanced load )	Charge/discharge Conversion Time			·			
Voltage Deviation         <1%UN ( Linear balanced load )           Voltage Unbalance         <0.5%UN ( Linear balanced load )           Voltage Total Harmonic Distortion Rate         <3% ( Linear load )           Frequency         50Hz/60Hz           Unbalanced Load Carrying Capacity         100%           Protection           DC Input Protection         Disconnect switches + Fuses           AC Output Protection         Interrupter           Surge Protection         DC Type II / AC Type II           Insulation Monitori         Yes           Overheating Protection         Yes           System           Inlet Method         Bottom feed           Max. Efficiency         >99%           Overload Capacity         110% for long-time; 120% for 1min           Operating Temperature         -35°C~60°C (>45°C derating operation, <-20°C heating start)           Relative Humidity         0%~100%RH, without condensation           Max. Altitude         5000m, (>2000m, derating)           Moises         <80dB           Dimension (W × D × H)         1080 × 1480 × 2405mm         1080 × 2380 × 2444mm           IP Level         >IP54           Cooling         Forced air           Communication Interface	Off-grid						
Voltage Unbalance       <0.5%UN (Linear balanced load)         Voltage Total Harmonic Distortion Rate       <3% (Linear load)         Frequency       50Hz/60Hz         Unbalanced Load Carrying Capacity       100%         Protection         DC Input Protection       Disconnect switches + Fuses         AC Output Protection       Interrupter         Surge Protection       DC Type II / AC Type II         Insulation Monitori       Yes         Overheating Protection       Yes         System       Protection         Inlet Method       Bottom feed         Max. Efficiency       >99%         Overload Capacity       110% for long-time; 120% for 1min         Operating Temperature       -35°C~60°C (>45°C derating operation, <-20°C heating start)         Relative Humidity       0%~100%RH, without condensation         Max. Altitude       5000m, <>2000m, <>2000m derating)         Noises       <80dB         Dimension (W×D×H)       1080×1480×2405mm       1080×2380×2444mm         IP Level       >IP54         Cooling       Forced air         Communication Interface       RS485, Ethernet         Communication Protocol       MODBUS-RTU, MODBUS-TCP, IEC61850 (GOOSE & MMS), IEC1         Cer	Rated Voltage	550V	550V	630V	690V	690V	
Voltage Total Harmonic Distortion Rate Frequency 50Hz/60Hz Unbalanced Load Carrying Capacity 100%  Protection  DC Input Protection DC Type II / AC Type II Insulation Monitori Yes Overheating Protection Potention  Max. Efficiency Overload Capacity 110% for long-time; 120% for 1min Operating Temperature Relative Humidity Max. Altitude 5000m, (>2000m derating) Noises Solumentori Max. Altitude 5000m, (>2000m derating) Noises Relative Humidity Noises Relative Humidity Noises Relative Humidity Relative Altitude Route Altitude Rout	Voltage Deviation		<1%UN (Linear balanced load)				
Frequency         50Hz/60Hz           Unbalanced Load Carrying Capacity         100%           Protection           DC Input Protection         Disconnect switches + Fuses           AC Output Protection         Interrupter           Surge Protection         DC Type II / AC Type II           Insulation Monitori         Yes           Overleating Protection         Yes           System           Inlet Method         Bottom feed           Max. Efficiency         >99%           Overload Capacity         110% for long-time; 120% for 1min           Operating Temperature         -35°C < 60°C (×45°C derating operation, < -20°C heating start)           Relative Humidity         0% ~ 100%RH, without condensation           Max. Altitude         5000m, (>2000m derating)           Noises         < 80dB           Dimension (W × D × H)         1080 × 1480 × 2405mm         1080 × 2380 × 2444mm           IP Level         > IPS4           Cooling         Forced air           Communication Interface	Voltage Unbalance						
Unbalanced Load Carrying Capacity  Protection  Disconnect switches + Fuses  AC Output Protection  AC Output Protection  DC Type II / AC Type II  Insulation Monitori  Yes  Overheating Protection  Interrupter  Overheating Protection  Protection  Interrupter  Overheating Protection  Yes  System  Inlet Method  Bottom feed  Max. Efficiency  999%  Overload Capacity  110% for long-time; 120% for 1min  Operating Temperature  -35°C~60°C (>45°C derating operation, <-20°C heating start)  Relative Humidity  0%~100%RH, without condensation  Max. Altitude  5000m, (>2000m derating)  Noises  <80dB  Dimension (W×D×H)  1080×1480×2405mm  IP Level  > P54   Cooling  Forced air  Communication Interface  RS485, Ethernet  Cmmunication Protocol  MODBUS-RTU, MODBUS-TCP, IEC61850 ( GOOSE & MMS ) , IEC104  Certifications	Voltage Total Harmonic Distortion Rate		<3% (Linear load)				
Protection   DC Input Protection Disconnect switches + Fuses   AC Output Protection Interrupter   Surge Protection DC Type II / AC Type II   Insulation Monitori Yes   Overheating Protection Yes   System System   Inlet Method Bottom feed   Max. Efficiency >99%   Overload Capacity 110% for long-time; 120% for 1min   Operating Temperature -35°C - 60°C (>45°C derating operation, <-20°C heating start)   Relative Humidity 0% ~ 100%RH, without condensation   Max. Altitude 5000m, (>2000m derating)   Noises <80dB   Dimension (W × D × H) 1080 × 1480 × 2405mm 1080 × 2380 × 2444mm   IP Level >IP54   Cooling Forced air   Communication Interface RS485, Ethernet   Communication Protocol MODBUS-RTU, MODBUS-TCP, IEC61850 (GOOSE & MMS), IEC104   Certifications	Frequency		50Hz/60Hz				
Disconnect switches + Fuses  AC Output Protection Interrupter  Surge Protection DC Type II / AC Type II  Insulation Monitori Yes  Overheating Protection Yes  System  Inlet Method Bottom feed  Max. Efficiency >99%  Overload Capacity 110% for long-time; 120% for 1min  Operating Temperature -35°C ~ 60°C (>45°C derating operation, < -20°C heating start)  Relative Humidity 0% ~ 100%RH, without condensation  Max. Altitude 5000m, (>2000m derating)  Noises <80dB  Dimension (W×D×H) 1080×1480×2405mm 1080×2380×2444mm  IP Level >IP54  Cooling Forced air  Communication Interface RS485, Ethernet  Cmmunication Protocol MODBUS-RTU, MODBUS-TCP, IEC61850 ( GOOSE & MMS ) , IEC104  Certifications	Unbalanced Load Carrying Capacity		100%				
AC Output Protection   DC Type II   AC Type II   Insulation Monitori   Yes   Overheating Protection   Yes   System   Inlet Method   Bottom feed   Max. Efficiency   >99%   Overload Capacity   110% for long-time; 120% for 1min   Operating Temperature   -35°C~60°C   >45°C derating operation, < -20°C heating start)   Relative Humidity   0%~100%RH, without condensation   Max. Altitude   5000m, (>2000m derating)   Noises   <80dB   Dimension (W × D × H)   1080 × 1480 × 2405mm   1080 × 2380 × 2444mm   IP Level   > P54   Cooling   Forced air   Communication Interface   RS485, Ethernet   Cmmunication Protocol   MODBUS-RTU, MODBUS-TCP, IEC61850 (GOOSE & MMS), IEC104   Certifications	Protection						
Surge Protection       DC Type II / AC Type II         Insulation Monitori       Yes         Overheating Protection       Yes         System         Inlet Method       Bottom feed         Max. Efficiency       >99%         Overload Capacity       110% for long-time; 120% for 1min         Operating Temperature       -35°C~ 60°C (>45°C derating operation, <-20°C heating start)         Relative Humidity       0% ~ 100%RH, without condensation         Max. Altitude       5000m, (>2000m derating)         Noises          Noises          Dimension (W×D×H)       1080×1480×2405mm       1080×2380×2444mm         IP Level       > IP54         Cooling       Forced air         Communication Interface       RS485, Ethernet         Cmmunication Protocol       MODBUS-RTU, MODBUS-TCP, IEC61850 (GOOSE & MMS), IEC104         Certifications	DC Input Protection		Di	sconnect switches + Fu	ses		
Insulation Monitori       Yes         Overheating Protection       Yes         System         Inlet Method       Bottom feed         Max. Efficiency       >99%         Overload Capacity       110% for long-time; 120% for 1min         Operating Temperature       -35°C~ 60°C (>45°C derating operation, < -20°C heating start)         Relative Humidity       0% ~ 100%RH, without condensation         Max. Altitude       5000m, (>2000m derating)         Noises       <80dB         Dimension (W×D×H)       1080×1480×2405mm       1080×2380×2444mm         IP Level       >IP54         Cooling       Forced air         Communication Interface       RS485, Ethernet         Cmmunication Protocol       MODBUS-RTU, MODBUS-TCP, IEC61850 (GOOSE & MMS), IEC104         Certifications	AC Output Protection	Interrupter					
Overheating Protection       Yes         System         Inlet Method       Bottom feed         Max. Efficiency       >99%         Overload Capacity       110% for long-time; 120% for 1min         Operating Temperature       -35°C~60°C (>45°C derating operation, <-20°C heating start)         Relative Humidity       0% ~ 100%RH, without condensation         Max. Altitude       5000m, (>2000m derating)         Noises       < 80dB         Dimension (W × D × H)       1080 × 1480 × 2405mm       1080 × 2380 × 2444mm         IP Level       >IP54         Cooling       Forced air         Communication Interface       RS485, Ethernet         Cmmunication Protocol       MODBUS-RTU, MODBUS-TCP, IEC61850 (GOOSE & MMS) , IEC104         Certifications	Surge Protection		DC Type II / AC Type II				
Inlet Method Bottom feed  Max. Efficiency >99%  Overload Capacity 110% for long-time; 120% for 1min  Operating Temperature -35°C∼ 60°C (>45°C derating operation, <-20°C heating start)  Relative Humidity 0% ~ 100%RH, without condensation  Max. Altitude 5000m, (>2000m derating)  Noises <80dB  Dimension (W×D×H) 1080×1480×2405mm 1080×2380×2444mm  IP Level >IP54  Cooling Forced air  Communication Interface RS485, Ethernet  Cmmunication Protocol MODBUS-RTU, MODBUS-TCP, IEC61850 (GOOSE & MMS), IEC1∪4  Certifications	Insulation Monitori		Yes				
Inlet Method Bottom feed  Max. Efficiency >99%  Overload Capacity 110% for long-time; 120% for 1min  Operating Temperature -35°C~60°C (>45°C derating operation, < -20°C heating start)  Relative Humidity 0%~100%RH, without condensation  Max. Altitude 5000m, (>2000m derating)  Noises <80dB  Dimension (W×D×H) 1080×1480×2405mm 1080×2380×2444mm  IP Level >IP54  Cooling Forced air  Communication Interface RS485, Ethernet  Cmmunication Protocol MODBUS-RTU, MODBUS-TCP, IEC61850 (GOOSE & MMS), IEC104  Certifications	Overheating Protection			Yes			
Max. Efficiency       >99%         Overload Capacity       110% for long-time; 120% for 1min         Operating Temperature       -35°C~ 60°C (>45°C derating operation, <-20°C heating start)	System						
Overload Capacity  110% for long-time; 120% for 1min  Operating Temperature  -35°C~ 60°C (>45°C derating operation, < -20°C heating start)  Relative Humidity  0%~100%RH, without condensation  Max. Altitude  5000m, (>2000m derating)  Noises  <80dB  Dimension (W×D×H)  1080×1480×2405mm  1080×2380×2444mm  IP Level  >IP 54  Cooling  Forced air  Communication Interface  RS485, Ethernet  Cmmunication Protocol  MODBUS-RTU, MODBUS-TCP, IEC61850 (GOOSE & MMS), IEC104  Certifications	Inlet Method			Bottom feed			
Operating Temperature -35°C~ 60°C (>45°C derating operation, < -20°C heating start)  Relative Humidity 0%~100%RH, without condensation  Max. Altitude 5000m, (>2000m derating)  Noises <80dB  Dimension (W×D×H) 1080×1480×2405mm 1080×2380×2444mm  IP Level >IP54  Cooling Forced air  Communication Interface RS485, Ethernet  Cmmunication Protocol MODBUS-RTU, MODBUS-TCP, IEC61850 (GOOSE & MMS), IEC104  Certifications	Max. Efficiency	>99%					
Relative Humidity 0%~100%RH, without condensation  Max. Altitude 5000m, (>2000m derating)  Noises <80dB  Dimension (W×D×H) 1080×1480×2405mm 1080×2380×2444mm  IP Level >IP54  Cooling Forced air  Communication Interface RS485, Ethernet  Cmmunication Protocol MODBUS-RTU, MODBUS-TCP, IEC61850 (GOOSE & MMS), IEC104  Certifications	Overload Capacity	110% for long-time; 120% for 1min					
Max. Altitude 5000m, (>2000m derating)  Noises <a href="#">&lt;80dB</a> Dimension (W×D×H) 1080×1480×2405mm 1080×2380×2444mm  IP Level	Operating Temperature	re -35°C~ 60°C (>45°C derating operation, < -20°C heating start)					
Noises <a href="#">&lt; 80dB</a> Dimension (W×D×H) 1080×1480×2405mm 1080×2380×2444mm  IP Level >IP54  Cooling Forced air  Communication Interface RS485, Ethernet  Cmmunication Protocol MODBUS-RTU, MODBUS-TCP, IEC61850 (GOOSE & MMS), IEC104  Certifications	Relative Humidity	0% ~ 100%RH, without condensation					
Dimension (W×D×H) 1080×1480×2405mm 1080×2380×2444mm  IP Level >IP54  Cooling Forced air  Communication Interface RS485, Ethernet  Cmmunication Protocol MODBUS-RTU, MODBUS-TCP, IEC61850 (GOOSE & MMS), IEC104  Certifications	Max. Altitude		5000m, (>2000m derating)				
IP Level >IP54  Cooling Forced air  Communication Interface RS485, Ethernet  Cmmunication Protocol MODBUS-RTU, MODBUS-TCP, IEC61850 (GOOSE & MMS), IEC104  Certifications	Noises		<80dB				
Cooling Forced air  Communication Interface RS485, Ethernet  Cmmunication Protocol MODBUS-RTU, MODBUS-TCP, IEC61850 ( GOOSE & MMS ) , IEC104  Certifications	Dimension (W $\times$ D $\times$ H)					1080×2380×2444mm	
Communication Interface RS485, Ethernet  Cmmunication Protocol MODBUS-RTU, MODBUS-TCP, IEC61850 ( GOOSE & MMS ) , IEC104  Certifications	IP Level			>IP54			
Cmmunication Protocol MODBUS-RTU, MODBUS-TCP, IEC61850 ( GOOSE & MMS ) , IEC104  Certifications	Cooling						
Certifications	Communication Interfac	ce		RS485, Ethernet			
	Cmmunication Protocol		MODBUS-RTU, MODE	BUS-TCP, IEC61850 ( GC	OSE & MMS), IEC	104	
Certification Standards GB/T 34120, GB/T 34133	Certifications						
	Certification Standards			GB/T 34120, GB/T 3413	3		