



Three Phase

# STORAGE SYSTEM

## PRODUCT MODEL

### INVERTER

- PA-INV-TPH8K
- PA-INV-TPH10K
- PA-INV-TPH12K

+

### BATTERY

- PA-BAT-4.8S



### HIGH PERFORMANCE

- 200% PV over management;
- 200% backup overload capacity, 50A battery current;
- Max. efficiency 98%, Battery efficiency 96%;
- Load monitoring accuracy 10W, Battery discharging threshold 10W.



### HIGH RELIABILITY

- UPS level redundant protection against backup load breakdown;
- Three-level firmware and two-level hardware battery protection;
- Multiple temperature monitoring, delicate thermal management;
- Max. 6 Inverters in parallel to increase power availability.



### HIGH INTELLIGENCE

- Internal EMS optimizes home energy supply automatically;
- PV production forecast;
- Built-in electric power service, FCAS VPP, etc;
- Online monitoring, online diagnosis. online service.

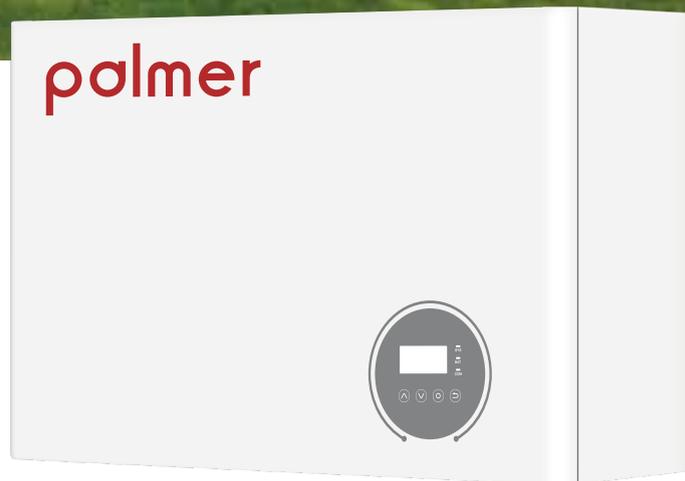
INVERTER MODEL	PA-INV-TPH8K	PA-INV-TPH10K	PA-INV-TPH12K
<b>PV INPUT</b>			
Max. PV Input Power	16kW	20kW	22.5kW
Max. PV Input Voltage		1100V	
MPPT Range		140~950V	
Max. Input Current		16A / 16A / 16A	
Max. Short Circuit Current		24A / 24A / 24A	
MPPT Trackers		3	
Strings Per MPPT Tracker		1 / 1 / 1	
<b>AC PORT</b>			
Rated Grid Output Power	8kVA	10kVA	12kVA
Max. Grid Input Power	16kVA	20kVA	22.5kVA
Rated Grid / Backup Voltage		220/380Vac, 230/400Vac, 3/N/PE	
Rated Grid / backup Frequency		50/60Hz	
Surge Backup Power	16kVA / 16kW	20kVA / 20kW	24kVA / 24kW
Rated Backup Power	8kVA	10kVA	12kVA
THDi		<3%	
THDv		<3% (Linear Load) / <5% (Non-linear Load)	
DCV		<100mV	
Crest Ratio		3 : 1	
Transfer Time		<10ms	
<b>EFFICIENCY</b>			
Max. Efficiency		98.4%	
Max. Round Trip Efficiency		96%	
<b>GENERAL DATA</b>			
Operating Temperature Range		-20°C~60°C	
Topology		Transformerless	
Dimensions (W*H*D)		590×416×205mm	
Weight		25kg	
Load Monitoring		Meter / CT / Backup box	
External Communication		RS-485 / WIFI / 4G / Ethernet	
Grid Regulation		VDE-AR-N 4105:2018, G98, G99, C10/11:2021, NTS 631, RD647:2020 UNE 217002:2020, CEI 0-21, VDE 0126-1-1, NRS 097-2-1, AS/NZS 4777.2:2020, EN 50549-1	
Safety Regulation		IEC/EN 62109-1&2, IEC/EN 62477-1:2012	
<b>BATTERY MODEL</b>		<b>PA-BAT-4.8S</b>	
Battery Type		LFP	
Battery Capacity		4.8kWh	
Usable Capacity		4.6kWh	
Depth of Discharge (DoD)		95%	
Nominal Battery Voltage		96V	
Operating Voltage Range		90~108V	
Max. Charging Current		50A	
Max. Discharging Current		50A	
Operating Temperature Range		Charge:0°C<T<50°C / Discharge:-10°C<T<50°C	
Cycle Lifetime		8000	
Series/Parallel		1~6 in series	
Dimensions (W*H*D)		590×430×205mm	
Weight		53.4kg	
Communication		CAN / RS-485 (Optional)	
Safety Regulation		IEC 62619:2017, IEC 62040:2017	
Transportation		UN38.3	
<b>SYSTEM</b>			
Operating Altitude		≤3000m (>3000m Derating)	
Relative Humidity		0~95% (No Condensing)	
Protection Degree		IP65	
Cooling		Natural Convection	
Noise		<30dB	
Warranty		5 years / 10 years	
EMC		IEC/EN 61000-6-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, IEC/EN 61000-6-4	

Note: Specifications are subject to change without advance notice.



## Three Phase

# HYBRID INVERTER



### PRODUCT MODEL

- PA-INV-TPH4K      ■ PA-INV-TPH10K
- PA-INV-TPH5K      ■ PA-INV-TPH12K
- PA-INV-TPH6K      ■ PA-INV-TPH15K
- PA-INV-TPH8K



#### HIGH PERFORMANCE

- 200% PV over management;
- 200% backup overload capacity, 50A battery current;
- Max. efficiency 98%, Battery efficiency 96%;
- Load monitoring accuracy 10W, Battery discharging threshold 10W.



#### HIGH RELIABILITY

- UPS level redundant protection against backup load breakdown;
- Three-level firmware and two-level hardware battery protection;
- Multiple temperature monitoring, delicate thermal management;
- Max. 6 Inverters in parallel to increase power availability.



#### HIGH INTELLIGENCE

- Internal EMS optimizes home energy supply automatically;
- PV production forecast;
- Built-in electric power service, FCAS VPP, etc;
- Online monitoring, online diagnosis. online service.

# PARAMETERS

INVERTER MODEL	PA-INV-TPH4K	PA-INV-TPH5K	PA-INV-TPH6K	PA-INV-TPH8K	PA-INV-TPH10K	PA-INV-TPH12K	PA-INV-TPH15K
<b>BATTERY PORT</b>							
Battery Type	Li-on / Lead-acid						
Battery Voltage Range	80~700V						
Max. Charging Current	50A						
Max. Discharging Current	50A						
<b>PV INPUT</b>							
Max. PV Input Power	8kW	10kW	12kW	16kW	20kW	22.5kW	22.5kW
Max. PV Input Voltage	1100V						
MPPT Range	140~950V						
Startup Voltage	120V						
Max. Input Current	16A / 16A / 16A						
Max. Short Circuit Current	24A / 24A / 24A						
MPPT Trackers	3						
Strings Per MPPT Tracker	1 / 1 / 1						
<b>GRID PORT</b>							
Rated Output Power	4kVA	5kVA	6kVA	8kVA	10kVA	12kVA	15kVA
Max. output current	6.7A	8.3A	10A	13.3A	16.7A	19.1A	23.9A
Max output apparent power	4kVA	5kVA	6kVA	8kVA	10kVA	12kVA	15kVA
Max. Input Power	8kVA	10kVA	12kVA	16kVA	20kVA	22.5kVA	22.5kVA
Rated Grid Voltage	220/380Vac, 230/400Vac, 3/N/PE						
Grid Voltage Range	180~270Vac						
Rated Grid Frequency	50/60Hz						
Power Factor	-0.8~+0.8						
THDi	<3%						
<b>BACKUP PORT</b>							
Surge Backup Power	8kVA	10kVA	12kVA	16kVA	20kVA	24kVA	30kVA
Rated Backup Power	4kVA	5kVA	6kVA	8kVA	10kVA	12kVA	15kVA
Rated Backup Voltage	220/380Vac, 230/400Vac, 3/N/PE						
Rated Backup Frequency	50/60Hz						
THDv	<3% (Linear Load) / <5% (Non-linear Load)						
DCV	<100mV						
Crest Ratio	3 : 1						
Transfer Time	<10ms						
<b>EFFICIENCY</b>							
Max. Efficiency	98%	98%	98.2%	98.4%	98.4%	98.4%	98.4%
Europe Efficiency	97.5%	97.5%	97.7%	97.9%	97.9%	97.9%	98%
MPPT Efficiency	99.9%						
Max. Round Trip Efficiency	96%						
<b>GENERAL DATA</b>							
Operating Temperature Range	-20°C~60°C						
Relative Humidity	0~95% (No Condensing)						
Operating Altitude	≤3000m (>3000m Derating)						
Cooling	Natural Convection	Natural Convection	Natural Convection	Natural Convection	Natural Convection	Natural Convection	Intelligent Air Cooling
Noise	<30dB	<30dB	<30dB	<30dB	<30dB	<30dB	<45dB
Topology	Transformerless						
Dimensions (W*H*D)	590x416x205mm						
Protection Degree	IP65						
Weight	25kg						
Warranty	5 years / 10 years						
<b>HMI&amp;COMM.</b>							
Communication with BMS	CAN / RS-485						
Load Monitoring	Meter / CT / Backup box						
External Communication	RS-485 / WIFI / 4G / Ethernet						
User Interface	LED / LCD						
<b>CERTIFICATE</b>							
Grid Regulation	VDE-AR-N 4105:2018, G98, G99, C10/11:2021, NTS 631, RD647:2020 UNE 217002:2020, CEI 0-21, VDE 0126-1-1, NRS 097-2-1, AS/NZS 4777.2:2020, EN 50549-1						
Safety Regulation	IEC/EN 62109-1&2, IEC/62477-1:2012						
EMC	EC/EN 61000-6-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, IEC/EN 61000-6-4						

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