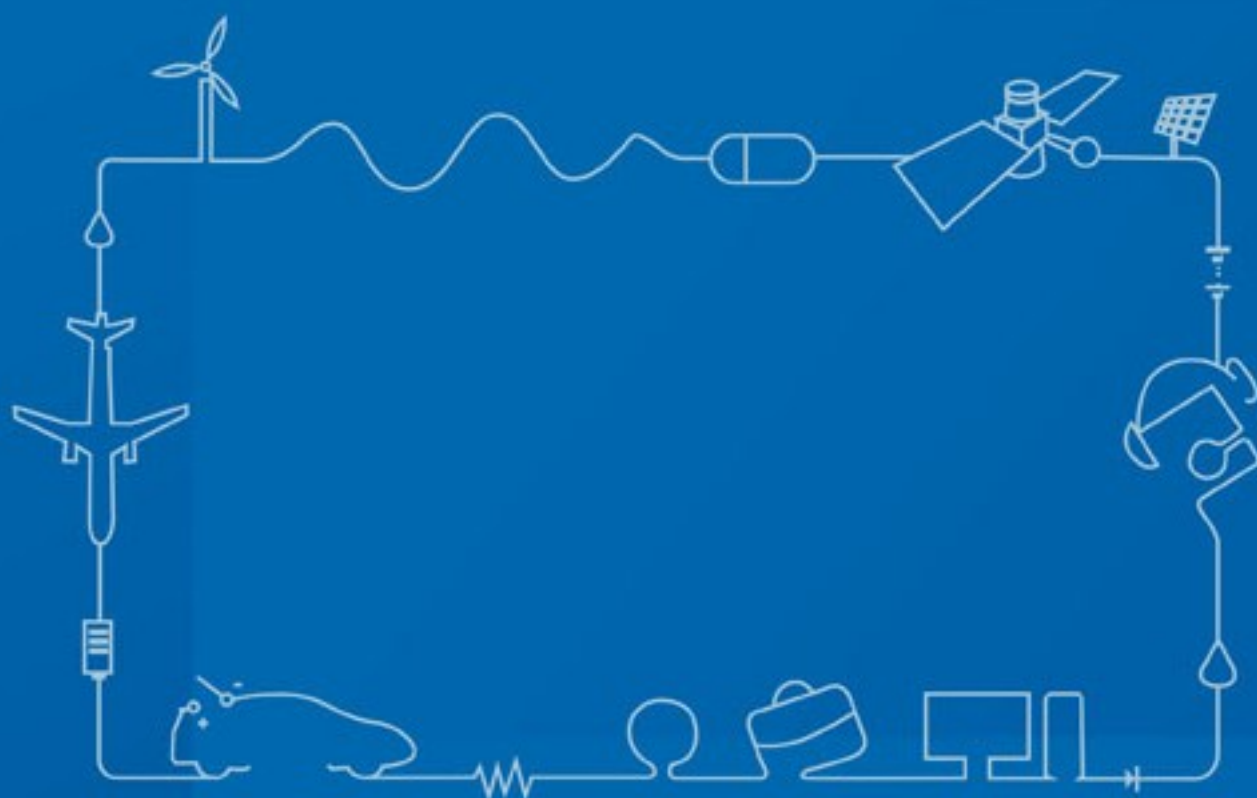




World's Top Ten Company in the power industry
A high-tech company in Guangdong province
well-known trademark in Guangdong province

PV grid-connected inverters



TSG1K6TL/TSG2K5TL/TSG3KTL-S PV grid-connected inverters

Product features

- Real time monitors inverters remotely by data logger
- Multilingual support available
- Efficient non-isolated topological Structure
- Temperature range -25°C to 60°C , compact design, and easy to install

Certificates

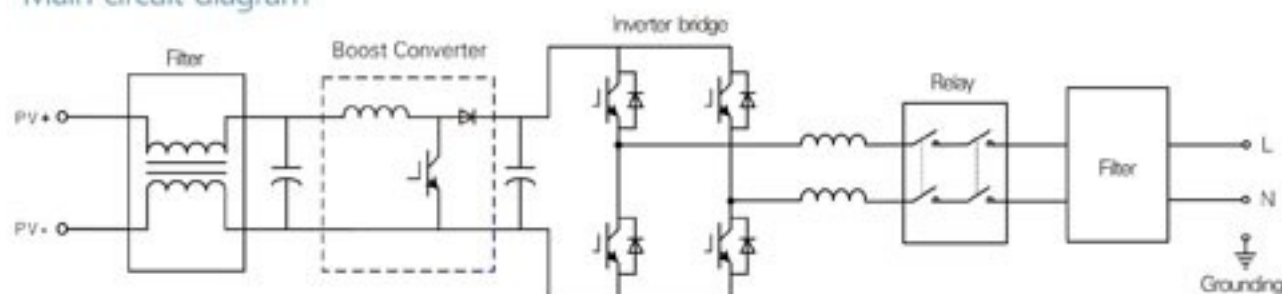
CE (EU), GS (Germany), G83 (UK), VDE4105 (Germany),
ENEL (Italy) and AS4777 (Australia)

PRODUCT

Performance features

- Controlled by TI Digital DSP
- Controlled by efficient MPPT to track the maximum PV output
- Pure sine wave output, automatic synchronization to grid, low harmonics
- Anti-island protection by disturbance detection
- Excellent functions of protection and alarm
- Optional CAN, Ethernet, RS485, Bluetooth ports, and remote data collection.

Main circuit diagram



Technical Data	TSG1K6TL	TSG2K5TL	TSG3KTL-S
Input (DC)			
Max. DC power (@cosφ=1)	1700W	2800W	3300W
Max. input voltage	450V	450V	450V
MPP voltage range	180V~420V	210V~420V	210V~420V
Rated input voltage	380V	380V	380V
Max. input current	12A	15A	22A
Number of MPP inputs	1	1	1
Number of strings inputs	2	2	2
Output (AC)			
Rated power	1.6kVA	2.5kVA	3kVA
Rated AC voltage	230V	230V	230V
Rated frequency	50Hz	50Hz	50Hz
Max. output current	7A	12A	13A
THD (@rated power)	<2%	<2%	<2%
Power factor (@rated power)	≥0.99	≥0.99	≥0.99
Connection phases	Single-phase	Single-phase	Single-phase
Efficiency			
Max. efficiency	97.40%	97.40%	97.40%
EU efficiency	96.70%	96.70%	96.70%
Protection			
Input-side disconnection device	○	○	○
Output-side disconnection device	○	○	○
Grid monitoring	●	●	●
Ground fault monitoring	●	●	●
Insulation monitoring	●	●	●
Electrical isolation	○	○	○
General Data			
Dimensions (WxHxD)	335x480x135mm	335x480x135mm	335x480x135mm
Weight	17KG	17KG	17KG
Operating temperature range	-25℃~+60℃	-25℃~+60℃	-25℃~+60℃
Max. self-consumption/self-consumption at night	20W/0W	20W/0W	20W/0W
Cooling concept	Self-cooling	Self-cooling	Self-cooling
Degree of protection	IP65	IP65	IP65
Application			
Max. permissible value for relative humidity (non-condensation)	0~95%	0~95%	0~95%
Max. operating altitude above MSL	2000m	2000m	2000m
Features			
Display	LCD	LCD	LCD
Communication protocols	RS485	RS485	RS485
Certification	CE	CE	CE
Type designation	Outdoor	Outdoor	Outdoor



TSG3/4/5KTL

PV grid-connected inverters

Product features

- Maximum efficiency up to 97.4%
- Multilingual support available
- Efficient non-isolated topological Structure
- Modular design, compact and easy to install

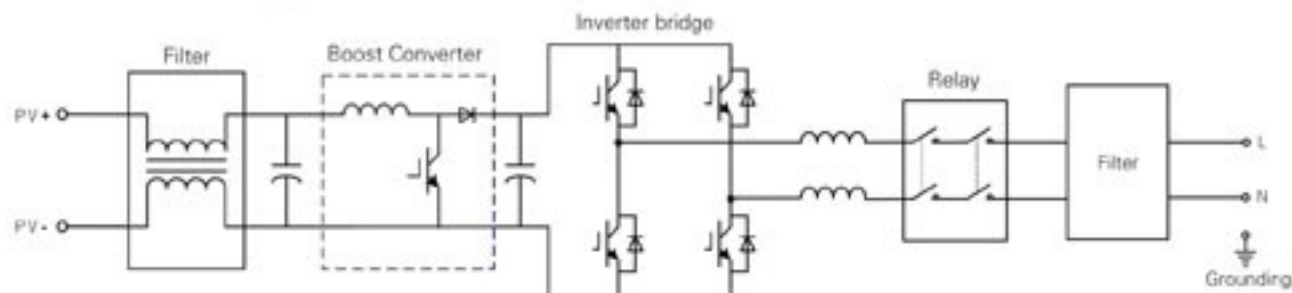
Certificates

CE (EU), GS (Germany), G83 / G95 (UK), VDE4105 (Germany), ENEL (Italy) and AS4777 (Australia)

Performance features

- Controlled by TI Digital DSP
- Assembled by well-known brand and high efficient IGBT power modular
- Controlled by efficient MPPT to track the maximum PV output
- Pure sine wave output, automatic synchronization to grid, low harmonics
- Anti-island protected by disturbance detection
- Excellent protection and alarming
- Optional CAN, Ethernet, RS485, Bluetooth ports, and remote data collection.

Main circuit diagram



Technical Data	TSG3KTL	TSG4KTL	TSG5KTL
Input (DC)			
Max. DC power($\cos\phi=1$)	3300W	4400W	5000W
Max. input voltage	520V	520V	520V
MPP voltage range	180V~420V	210V~420V	260V~420V
Rated input voltage	360V	360V	360V
Max. input current	18A	20A	20A
Number of MPP inputs	1	1	1
Number of strings inputs	2	2	2
Output (AC)			
Rated power	3kVA	4kVA	4.6kVA
Rated AC voltage	230V	230V	230V
Rated frequency	50Hz	50Hz	50Hz
Max. output current	15A	20A	25A
THD (@rated power)	<2%	<2%	<2%
Power factor (@rated power)	≥ 0.99	≥ 0.99	≥ 0.99
Connection phases	Single-phase	Single-phase	Single-phase
Efficiency			
Max. efficiency	97.40%	97.40%	97.40%
EU efficiency	96.30%	96.30%	96.30%
Protection			
Input-side disconnection device	○	○	○
Output-side disconnection device	○	○	○
Grid monitoring	●	●	●
Ground fault monitoring	●	●	●
Insulation monitoring	●	●	●
Electrical isolation	○	○	○
General Data			
Dimensions (WxHxD)	415X330X176mm	415X330X176mm	415X330X176mm
Weight	35KG	35KG	35KG
Operating temperature range	-25℃~+60℃	-25℃~+60℃	-25℃~+60℃
Max. self-consumption/self-consumption at night	20W/0W	20W/0W	20W/0W
Cooling concept	Forced cooling	Forced cooling	Forced cooling
Degree of protection	IP65	IP65	IP65
Application			
Max. permissible value for relative humidity (non-condensation)	0~95%	0~95%	0~95%
Max. operating altitude above MSL	2000m	2000m	2000m
Features			
Display	LCD	LCD	LCD
Communication protocols	RS485	RS485	RS485
Certification	CE	CE	CE
Type designation	Outdoor	Outdoor	Outdoor



TSG3/4/5K PV grid-connected inverters

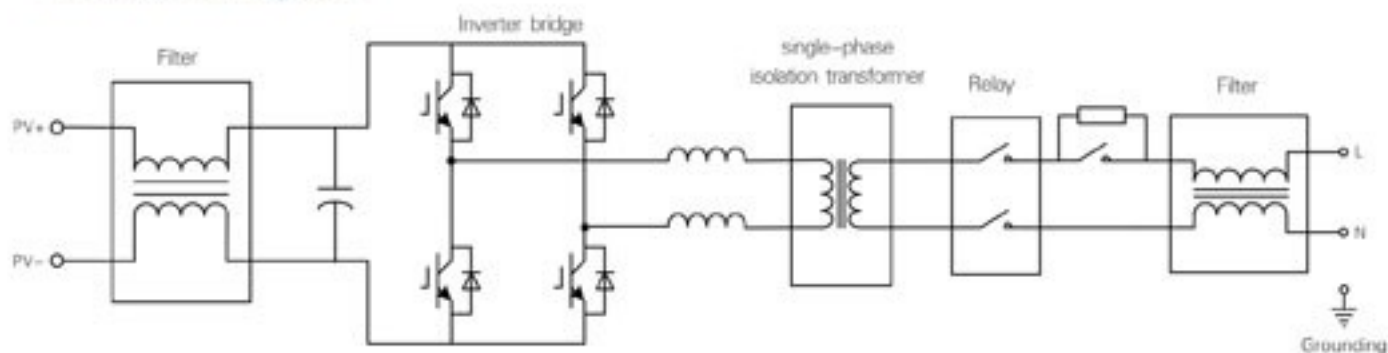
Product features

- + With efficient isolation transformer
- + Synergetic controlled by dual CPU (DSP+CPLD)
- + Suitable temperature range from -25°C to $+60^{\circ}\text{C}$
- + Compact design, easy to install

Performance features

- + Controlled by TI digital DSP
- + High efficiency, slow temperature rise, low noise, and long service life
- + Multiple communication ports, LCD display in multiple languages
- + IGBT modular design, easy to install, operate and maintain
- + Programmable protection and operational parameters
- + Both MPPT and CVT modes
- + Advanced MPPT algorithm, efficiency > 99%

Main circuit diagram



Technical Data	TSG3K	TSG4K	TSG5K
Input (DC)			
Max. DC power($\cos\phi=1$)	3300W	4400W	5500W
Max. input voltage	550V	550V	550V
MPP voltage range	250V~450V	250V~450V	250V~450V
Rated input voltage	300V	300V	300V
Max. input current	14A	18A	22A
Number of MPP inputs	1	1	1
Number of strings inputs	2	3	4
Output (AC)			
Rated power	3KVA	4KVA	5KVA
Rated AC voltage	220V	220V	220V
Rated frequency	50Hz	50Hz	50Hz
Max. output current	15A	20A	25A
THD (@rated power)	<2%	<2%	<2%
Power factor (@rated power)	≥ 0.99	≥ 0.99	≥ 0.99
Connection phases	Single-phase	Single-phase	Single-phase
Efficiency			
Max. efficiency	96.00%	96.00%	96.00%
EU efficiency	94.00%	94.00%	94.00%
Protection			
Input-side disconnection device	○	○	○
Output-side disconnection device	○	○	○
Grid monitoring	●	●	●
Ground fault monitoring	●	●	●
Insulation monitoring	●	●	●
Electrical isolation	●	●	●
General Data			
Dimensions (WxHxD)	414x620x220mm	414x620x220mm	414x620x220mm
Weight	62KG	62KG	62KG
Operating temperature range	-25℃~+60℃	-25℃~+60℃	-25℃~+60℃
Max. self-consumption/self-consumption at night	20W/0W	20W/0W	20W/0W
Cooling concept	Forced cooling	Forced cooling	Forced cooling
Degree of protection	IP54	IP54	IP54
Application			
Max. permissible value for relative humidity (non-condensation)	0~95%	0~95%	0~95%
Max. operating altitude above MSL	2000m	2000m	2000m
Features			
Display	LCD	LCD	LCD
Communication protocols	RS485	RS485	RS485
Certification	CQC	CQC	CQC
Type designation	Outdoor	Outdoor	Outdoor

TSG11K3

PV grid-connected inverters

Product features

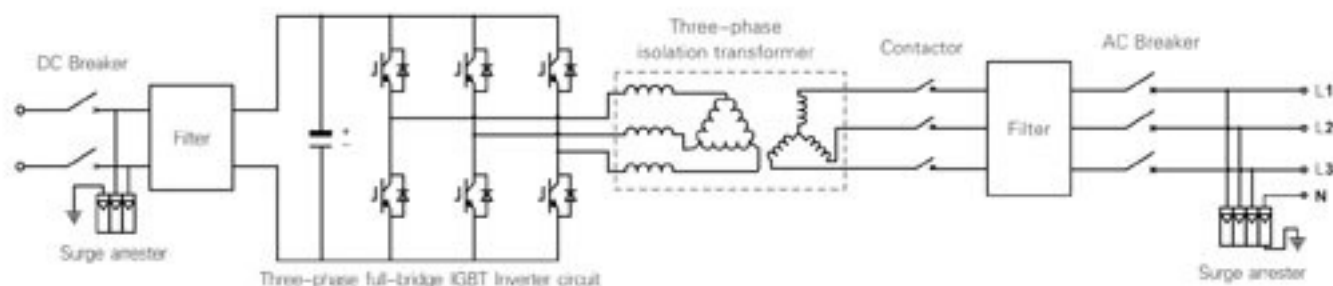
- + With high efficient isolation transformer
- + Synergetic controlled by dual CPU (DSP+CPLD)
- + Suitable temperature range from -25°C to $+50^{\circ}\text{C}$
- + Compact design, easy to install



Performance features

- + Controlled by TI digital DSP
- + High efficiency, slow temperature rise, low noise, and long service life
- + Multiple communication ports, LCD display in multiple languages
- + IGBT modular design, easy to install, operate and maintain
- + Advanced anti-island protection
- + Programmable protection and operational parameters
- + Both MPPT and CVT modes
- + Advanced MPPT algorithm, efficiency > 99%

Main circuit diagram





TSG17K3TL PV grid-connected inverters

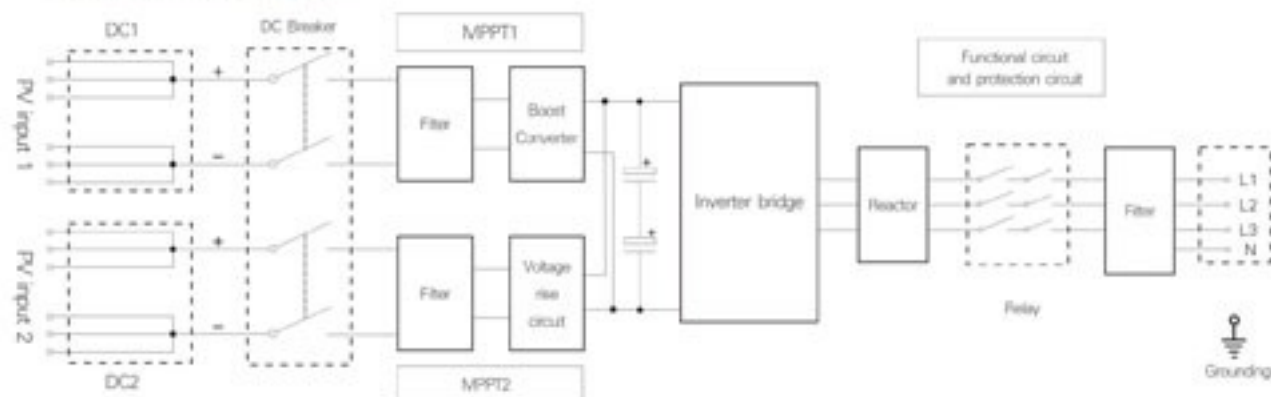
Product features

- + Synergetic controlled by dual CPU (DSP+CPLD)
- + Efficient non-isolated topological Structure
- + Suitable temperature range from -25°C to $+60^{\circ}\text{C}$
- + Compact design, easy to install

Performance features

- + Controlled by TI Digital DSP
- + Assembled by well-known brand and high efficient IGBT power modular
- + Controlled by high efficient MPPT to track the maximum PV output, MPPT rate $>99\%$
- + Pure sine wave output, automatic synchronization to grid, low harmonics
- + Anti-island protected by disturbance detection
- + Excellent functions of protection and alarm
- + Optional CAN, Ethernet, RS485, Bluetooth ports, and remote data collection

Main circuit diagram



Technical Data		TSG17K3TL
Input (DC)		
Max. DC power (@cosφ=1)		17.5kW
Max. input voltage		1000V
MPP voltage range		400V~800V
Rated input voltage		700V
Max. input current		2X22A
Number of MPP inputs		2
Number of strings inputs		6
Output (AC)		
Rated power		17kVA
Rated AC voltage		380V
Rated frequency		50Hz
Max. output current		24.6A
THD (@rated power)		<3%
Power factor (@rated power)		≥0.99
Connection phases		Three-phase
Efficiency		
Max. efficiency		97.40%
EU efficiency		96.30%
Protection		
Input-side disconnection device		●
Output-side disconnection device		○
Grid monitoring		●
Ground fault monitoring		●
Insulation monitoring		●
Electrical isolation		○
General Data		
Dimensions (WxHxD)		605X785X230mm
Weight		55KG
Operating temperature range		-25℃~+60℃
Max. self-consumption/self-consumption at night		50W/0W
Cooling concept		Forced cooling
Degree of protection		IP55
Application		
Max. permissible value for relative humidity (non-condensation)		0~95%
Max. operating altitude above MSL		2000m
Features		
Display		LCD
Communication protocols		RS485
Certification		CE
Type designation		Outdoor



TSG50/100K3

PV grid-connected inverters

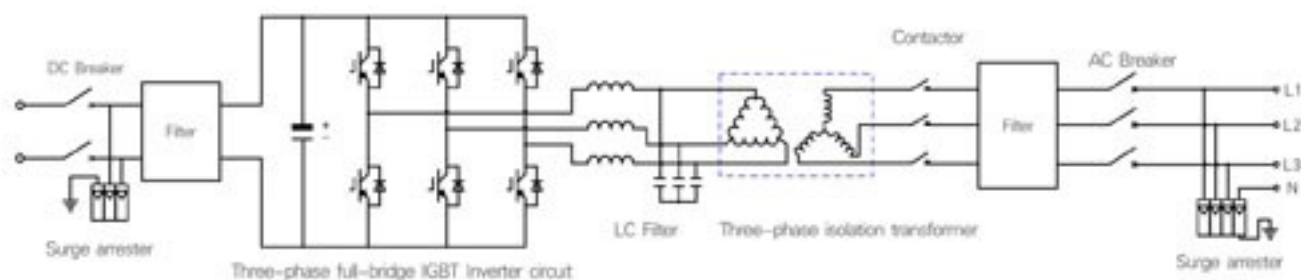
Product features

- With high efficient isolation transformer
- Synergetic controlled by dual CPU (DSP+CPLD)
- Suitable temperature range from -25°C to $+55^{\circ}\text{C}$
- Compact design, easy to install

Performance features

- Controlled by TI Digital DSP
- High efficiency, slow temperature rise, low noise, and long service life
- Multiple communication ports and LCD display in multiple languages
- IGBT modular design, easy to install, operate and maintain
- Programmable protection and operational parameters
- Both MPPT and CVT modes
- Advanced MPPT algorithm, efficiency $> 99\%$

Main circuit diagram



Technical Data	TSG50K3	TSG100K3
Input (DC)		
Max. DC power (@cosφ=1)	55KW	110KW
Max. input voltage	1000V	1000V
MPP voltage range	450V~850V	450V~850V
Rated input voltage	700V	700V
Max. input current	125A	238A
Number of MPP inputs	1	1
Number of strings inputs	1	1
Output (AC)		
Rated power	50KVA	100KVA
Rated AC voltage	380V	380V
Rated frequency	50Hz	50Hz
Max. output current	76A	152A
THD (@rated power)	<3%	<3%
Power factor (@rated power)	≥0.99	≥0.99
Connection phases	Three-phase	Three-phase
Efficiency		
Max. efficiency	96.20%	96.50%
EU efficiency	95.30%	96.00%
Protection		
Input-side disconnection device	●	●
Output-side disconnection device	●	●
Grid monitoring	●	●
Ground fault monitoring	○	○
Insulation monitoring	●	●
Electrical isolation	●	●
General Data		
Dimensions (WxHxD)	850X2000X1000mm	850X2000X1000mm
Weight	730KG	925KG
Operating temperature range	-25℃~+55℃	-25℃~+55℃
Max. self-consumption/self-consumption at night	430W/35W	430W/35W
Cooling concept	Forced cooling	Forced cooling
Degree of protection	IP20	IP20
Application		
Max. permissible value for relative humidity (non-condensation)	0~95%	0~95%
Max. operating altitude above MSL	2000m	2000m
Features		
Display	LCD	LCD
Communication protocols	RS485	RS485
Certification	CEC	CEC
Type designation	Indoor	Indoor

TSG250K3TL grid-connected inverters

Product features

- Strong anti-interference with optical isolation
- Enhanced system reliability with optimized circuit and structure design
- Modular design, easy to install and maintain
- Low voltage ride-through (optional)

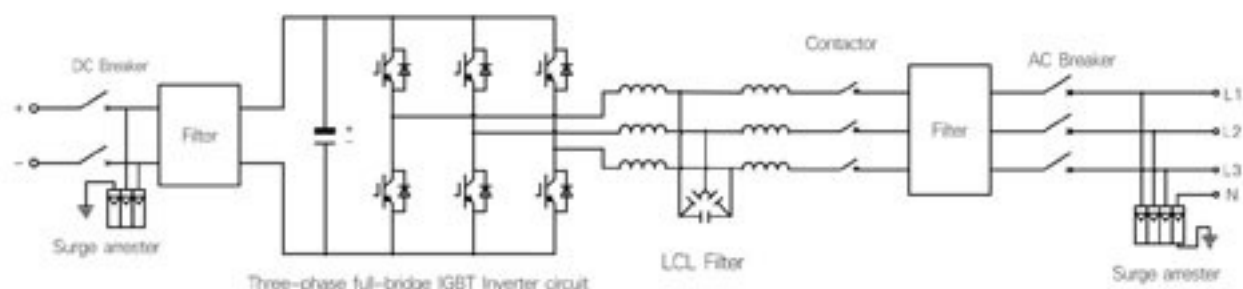


PRODUCT

Performance features

- Digital CPU controls (DSP+CPLD)
- Adjustable reactive power, power factor ± 0.9
- World leading power modules
- Advanced MPPT algorithm tracks the maximum output of PV module in real time
- Pure sine wave output, automatic synchronization to grid, low harmonics
- Proactive and passive detection for anti-island protection
- Excellent functions of protection and alarm
- Optional RS232/RS485 and Ethernet ports for remote data collection and monitoring

Main circuit diagram



Technical Data		TSG250K3TL
Input (DC)		
Max. DC power($\cos\phi=1$)		275KW
Max. input voltage		900V
MPP voltage range		450V~820V
Rated input voltage		700V
Max. input current		650A
Number of MPP inputs		1
Number of strings inputs		1
Output (AC)		
Rated power		250KVA
Rated AC voltage		270V
Rated frequency		50Hz
Max. output current		588A
THD (@rated power)		<3%
Power factor (@rated power)		≥ 0.99
Connection phases		Three-phase
Efficiency		
Max. efficiency		98.20%
EU efficiency		97.50%
Protection		
Input-side disconnection device		●
Output-side disconnection device		●
Grid monitoring		●
Ground fault monitoring		○
Insulation monitoring		●
Electrical isolation		○
General Data		
Dimensions (WxHxD)		1200x2100x800mm
Weight		1040KG
Operating temperature range		-25℃~+55℃
Max. self-consumption/self-consumption at night		<1000W/≤100W
Cooling concept		Forced cooling
Degree of protection		IP20
Application		
Max. permissible value for relative humidity (non-condensation)		0~95%
Max. operating altitude above MSL		2000m
Features		
Display		LCD
Communication protocols		RS485
Certification		CQC
Type designation		Indoor



TSG500K3TL grid-connected inverters

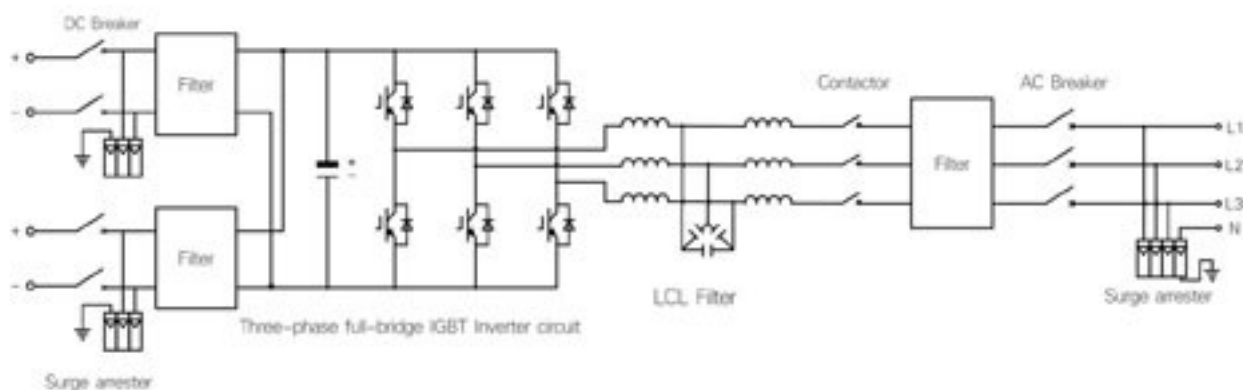
Product features

- Water cooling allows high reliability
- Max. Efficiency up to 98.7% with optimized circuit and structure design
- Modular design, easy to install and maintain
- Low voltage ride-through (optional)

Performance features

- Adjustable reactive power, power factor ± 0.9
- High efficient and fast MPPT algorithm, tracking rate at 99.9%
- Pure sine wave output, automatic synchronization to grid, low harmonics
- Proactive and passive detection for anti-island protection
- Excellent functions of protection and alarm
- RS485/RS232 and Ethernet ports for remote data collection and monitoring
- Implement of real-time monitoring with built-in detection system of grounding insulation

Main circuit diagram



Technical Data		TSG500K3TL
Input (DC)		
Max. DC power($\cos\phi=1$)		575KW
Max. input voltage		950V
MPP voltage range		460V~850V
Rated input voltage		700V
Max. input current		1000A
Number of MPP inputs		1
Number of strings inputs		2
Output (AC)		
Rated power		500KVA
Rated AC voltage		315V
Rated frequency		50Hz
Max. output current		920A
THD (lbrated power)		<3%
Power factor (lbrated power)		≥ 0.99
Connection phases		Three-phase
Efficiency		
Max. efficiency		98.70%
EU efficiency		97.60%
Protection		
Input-side disconnection device		●
Output-side disconnection device		●
Grid monitoring		●
Ground fault monitoring		●
Insulation monitoring		●
Electrical isolation		○
General Data		
Dimensions (WxHxD)		2300x2000x800mm
Weight		1800KG
Operating temperature range		-25℃~+55℃
Max. self-consumption/self-consumption at night		<2500W/ <500W
Cooling concept		Water-cooling
Degree of protection		IP43/IP54 (Opt.)
Application		
Max. permissible value for relative humidity (non-condensation)		0~95%
Max. operating altitude above MSL		2000m
Features		
Display		LCD
Communication protocols		RS485
Certification		CCC
Type designation		Outdoor/Indoor (Opt.)

W103 Data collectors



Product features

- Versatile communication ports, convenient for communication with products from different manufacturers
- Built-in data storage allows long time data saving even without power supply
- Lower self-consumption ensures long, stable and reliable operation
- Unique IEEE1588 protocol support enables highly precise measurement timing
- Industrial monochrome STN screen, fast responding, allows data viewing at local machine
- Unique Ethernet ports allow remote monitoring and management at PC through TCP/IP protocol

PRODUCT

W003 Data collectors



Product features

- Versatile communication ports, convenient for communication with products from different manufacturers
- Built-in data storage allows long time data saving even without power supply
- Lower self-consumption ensures long, stable and reliable operation
- Unique IEEE1588 protocol support enables highly precise measurement timing
- Unique Ethernet ports allow remote monitoring and management at PC through TCP/IP protocol

TES3K

Energy storage system

Product features

- + Wide MPPT range: 48–88V.
- + Power complementary and intelligent design
- + Intuitive user interface
- + Professional billing devices allow intuitive view of power usage and savings at display

Performance features

This is a small household solar power station. As a new, safe, reliable, and green energy, this independent solar power station features robust power, compact design with small footprint, attractive outlook, wide application, safe and reliable operation, easy to install and maintain, short time required for installation and commissioning, mobility, high conversion, and a variety of power charging approaches. It is an excellent AC and DC solar power system ideal for camping, nomadic housing, and temporary facilities at mining or construction sites.

Featured highlights

When the solar battery's output is within the range of 48–88V, MPPT circuit transfers 99% of the electric power to the charging circuit, so the PV battery's usage is increased.

Power complementary feature: When the battery is discharged to the protection voltage level, energy storage system will automatically connect the output to main power supply. When the battery is charged to the rated level by solar power, the energy storage system will automatically shift back to inverter output mode. In so doing, the battery's service life is improved significantly and intelligent energy is achieved.

Intuitive user interface: simple and graphic interfaces make it easy for users to understand system operations.



TES3K Energy storage system technical specification

Solar battery voltage range (MPPT)	48–88V	AC output current	14A
MPPT tracking rate	>99%	Output waveform	Pure sine wave
Connection to solar power	≤3KW	Distortion	THD < 3%
Solar power open-circuit voltage	≤100V	Output frequency	50Hz ± 0.5%
Charging current	>1–43A	Efficiency	90%
High voltage disconnect (HVD)	56.5V ± 0.2V	Power factor	0.9
High voltage relay (HVR)	54V	Protection class	IP20
Low battery protection	>43V	Communication ports	RS485, CAN (RJ45 optional)
Battery resumes power supply	48V	Ambiance temperature	–10°C–50 °C
Batter rated voltage	48V	Ambiance humidity	0–90%
Voltage range	42–58V	Cooling	Forced cooling
Battery capacity	200Ah	Display	LCD
AC output power	≤3000W	Size	1350 × 650 × 800cm
Output voltage	AC220V ± 3%	Net weight	65KG (excluding battery)

Low power energy storage systems

Performance features

- Better performance**
 Integrated design of controller and inverter and output with buffer isolation help completely avoid inductive inrush.
- Better reliability**
 Industrial and military-level design ensures minimum fault in long term operation.
- Better adaptability**
 Maintains reliability in high-altitude and high temperature difference areas.
- Better protection**
 Multiple protections, including reverse input, output short circuit, battery over-charge, over discharge, output overload, and battery charging compensation.
- More convenient**
 Rack-mount design, easy to install, and convenient to carry and move.



Performance specification		TES200	TES300	TES500	TES600	TES800
PV input	Working voltage	12	24	24	24	48
	Max. PV input voltage (V)	48	48	48	48	96
	Max. PV input current (A)	10	15	20	20	15
	Float voltage (V)	13.8	13.8	27.4	27.4	55.2
	Overcharge protection voltage (V)	14.2	14.2	28.2	28.2	56.4
	Rated capacity (Wh)	200	300	500	600	800
	Rated output power (W)	240	360	600	720	960
	Max. storage power (W/h)	1200	1920	3600	4320	5760
	AC output frequency (Hz)	50	50	50	50	50
	AC output current (Hz)	220V	220V	220V	220V	220V
AC output	Max. output current (A)	1.1	1.63	2.73	3.27	4.36
	Efficiency(80% resistive load)	88%	88%	88%	90%	90%
	Output isolation	Yes	Yes	Yes	Yes	Yes
	AC output waveform	Sine wave				
	Output frequency (Hz)	50 ± 0.5%				
	Dynamic response (load 0~100%)	≤ 50ms				
	Overload capacity	120% (60s); 150% (10s)				
	Output voltage precision	220V ± 3%				
	Waveform distortion (linear load)	≤ 3%				
	Power factor	0.88				
Application temperature (°C)		-20~50				
Protection class		IP20				
Altitude (m)		≤ 5,000 (please refer to GB/T3859.2 standards when over 1,000m)				

Convergence boxes

Intelligent PV convergence box

PV convergence boxes are used to connect PV arrays and inverters for lightning protection and over current protection. It is also used to monitor single string current, voltage, and lightning protection device status in PV arrays as well as circuit breaker status.

Special electrical design and component selection can ensure long time reliable operation. Large screen cabinets developed with unique processes by our own plant ensure reliable and durable outdoor use. Additionally, they are easy to maintain with easy wiring on site thanks to their safe, simple and well-arranged internal wiring.

Performance features

High performance components and smart design - our convergence boxes are cost-effective, beautifully designed, easy to use and highly efficient, and compliant with IP65 protection class. Internal electrical parameters in boxes can be measured (for example, current and voltage in each circuit, lightning device status, circuit breaker). With RS485 and wireless communication, convergence boxes locate faults that are not easy to be detected by PV arrays. This makes it an important part to PV systems.

With modular perforation design, smart detection units are easy to install. Each module has standard RS485 and wireless ports with standard MODBUS compliance. Surge protectors N+1 use top national or international products (e.g. DEHN, PHEONIX, and CITEU). DC fuses also use top national or international brands fuse base and core (e.g. BUSSMAN, and LITTLEFUSE). Likewise, world leading brand products are used in our protection diodes.

It monitors current, voltage, lightning protection status and switching status of each circuit. Different options, such as 4-way, 6-way, 8-way, 12-way and 16-way, are available for users to choose, or to be customized on request. It also features a rainproof hook structure, IP65 protection class, damp proof, mould proof, rat proof, Golden Sun and CE approved.



Model and specification	TSPV-CBS4	TSPV-CBS8	TSPV-CBS16
Max. input number	4-way	8-way	16-way
Max. voltage		1000V DC	
Subcircuit fuse rated current (can be replaced)		12A/16A/20A	
Output terminal size		PG21	
Protection class		IP65	
Ambiance temperature/humidity		-25°C ~ +80°C/0 ~ 99%	
Width x Height x Depth	550 x 550 x 190(mm)	550 x 550 x 190(mm)	600 x 550 x 190(mm)
Weight	14kg	16kg	20kg
Housing material		Cold-rolled steel/Stainless steel/PC	
Communication		RS485/Wireless	
Monitoring modular power supply		220VAC/24VDC/Self-powered	

- Ten Sources Solar Electricity Limited

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