

String Inverter (8-23kW)

SUN2000-8/10/12/15/17/20/23KTL



Smart

- Maximum of 3 MPPT for versatile adaption to different module types or quantities built up with different alignments
- Up to 6 strings intelligent monitoring and fault detection
- RS 485 and USB ports for connectivity and data management
- Local graphic LCD and remote monitoring

Efficient

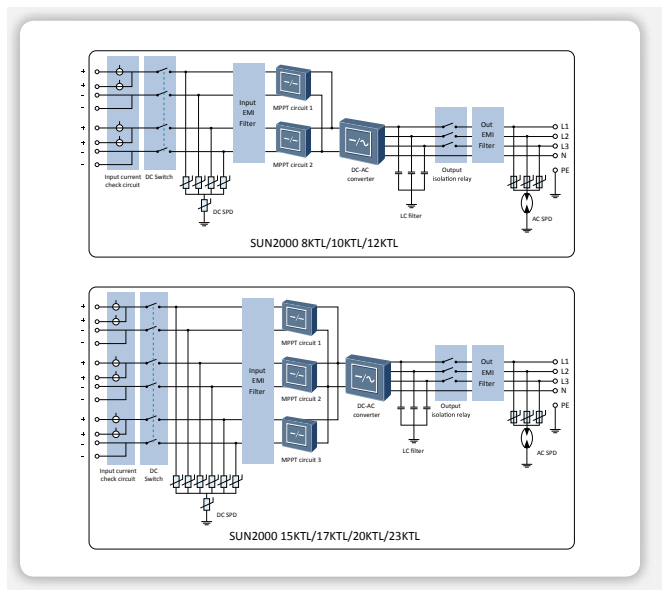
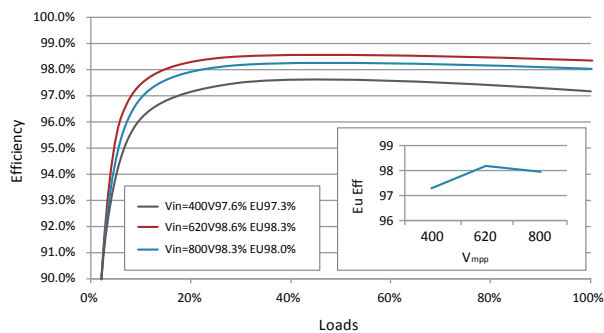
- SUN2000-20KTL Photon test result: A+/A+ at medium and high irradiation
- Maximum efficiency 98.6%
- European efficiency 98.3%

Safe

- Type II DC and AC surge protection devices integrated
- Noise ≤ 29 dB, Class-B electromagnetic radiation
- RCD protection function

Reliable

- Warranty up to 25 years
- No need of external fan with natural cooling technology
- Outdoor application of IP65



Technical Specifications	SUN2000-8KTL	SUN2000-10KTL	SUN2000-12KTL	SUN2000-15KTL	SUN2000-17KTL	SUN2000-20KTL	SUN2000-23KTL
Efficiency							
Max. efficiency	98.5%	98.5%	98.5%	98.6%	98.6%	98.6%	98.6%
European efficiency	98.0%	98.0%	98.0%	98.3%	98.3%	98.3%	98.3%
Input							
Max. DC input	9,100 W	11,400 W	13,700 W	17,100 W	19,200 W	22,500 W	23,600 W
Max. input voltage	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V
Max. input current per MPPT	18 A	18 A	18 A	18 A	18 A	18 A	18 A
Min. operating voltage	200 V	200 V	200 V	200 V	200 V	200 V	200 V
MPP voltage range	320 V - 800 V	320 V - 800 V	380 V - 800 V	400 V - 800 V	400 V - 800 V	480 V - 800 V	480 V - 800 V
Rated input voltage	620 V	620 V	620 V	620 V	620 V	620 V	620 V
Max. number of inputs	4	4	4	6	6	6	6
Number of MPP trackers	2	2	2	3	3	3	3
Output							
Rated output power	8,000 VA	10,000 VA	12,000 VA	15,000 VA	17,000 VA	20,000 VA	23,000 VA
Max. output power	8,800 VA	11,000 VA	13,200 VA	16,500 VA	18,700 VA	22,000 VA	23,000 VA
Rated output voltage	3n230V/400V+N+PE 3n220V/380V+N+PE	3 × 230V/400V+N+PE 3 × 220V/380V+N+PE	3 × 230V/400V+N+PE 3 × 220V/380V+N+PE	3 × 230V/400V+N+PE 3 × 220V/380V+N+PE	3 × 230V/400V+N+PE 3 × 220V/380V+N+PE	3 × 230V/400V+N+PE 3 × 220V/380V+N+PE	3 × 230V/400V+N+PE 3 × 220V/380V+N+PE
AC power frequency	50 Hz/60 Hz	50 Hz/60 Hz	50 Hz/60 Hz	50 Hz/60 Hz	50 Hz/60 Hz	50 Hz/60 Hz	50 Hz/60 Hz
Max. output current	12.8 A	16 A	19.2 A	24 A	27.2 A	32 A	33.5 A
Adjustable power factor	0.8 leading ... 0.8 lagging	0.8 leading ... 0.8 lagging	0.8 leading ... 0.8 lagging	0.8 leading ... 0.8 lagging	0.8 leading ... 0.8 lagging	0.8 leading ... 0.8 lagging	0.8 leading ... 0.8 lagging
Max. total harmonic distortion	<3%	<3%	<3%	<3%	<3%	<3%	<3%
Protection							
Input-side disconnection protection	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Anti-islanding protection	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AC over current protection	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DC reverse-polarity protection	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PV array string fault monitoring	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DC surge arresters	Type II	Type II	Type II	Type II	Type II	Type II	Type II
AC surge arresters	Type II	Type II	Type II	Type II	Type II	Type II	Type II
Insulation monitoring	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Residual current detection	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Display and Communication							
Display	Graphic LCD	Graphic LCD	Graphic LCD	Graphic LCD	Graphic LCD	Graphic LCD	Graphic LCD
RS485	Yes	Yes	Yes	Yes	Yes	Yes	Yes
USB	Yes	Yes	Yes	Yes	Yes	Yes	Yes
General Data							
Dimensions(W/H/D)	520 x 610 x 255 mm (20.5 x 24.0 x 10.0 in.)	520 x 610 x 255 mm (20.5 x 24.0 x 10.0 in.)	520 x 610 x 255 mm (20.5 x 24.0 x 10.0 in.)	520 x 610 x 255 mm (20.5 x 24.0 x 10.0 in.)	520 x 610 x 255 mm (20.5 x 24.0 x 10.0 in.)	520 x 610 x 255 mm (20.5 x 24.0 x 10.0 in.)	520 x 610 x 255 mm (20.5 x 24.0 x 10.0 in.)
Weight	40 kg	40 kg	40 kg	48 kg	48 kg	48 kg	48 kg
Operating temperature range	-25 °C to +60 °C (-13 °F to +140 °F)	-25 °C to +60 °C (-13 °F to +140 °F)	-25 °C to +60 °C (-13 °F to +140 °F)	-25 °C to +60 °C (-13 °F to +140 °F)	-25 °C to +60 °C (-13 °F to +140 °F)	-25 °C to +60 °C (-13 °F to +140 °F)	-25 °C to +60 °C (-13 °F to +140 °F)
Cooling	Natural convection	Natural convection	Natural convection	Natural convection	Natural convection	Natural convection	Natural convection
Operating altitude	3000 m	3000 m	3000 m	3000 m	3000 m	3000 m	3000 m
Relative humidity (non-condensing)	0 - 100%	0 - 100%	0 - 100%	0 - 100%	0 - 100%	0 - 100%	0 - 100%
DC connector	Amphenol H4	Amphenol H4	Amphenol H4	Amphenol H4	Amphenol H4	Amphenol H4	Amphenol H4
AC connector	Amphenol C16/3	Amphenol C16/3	Amphenol C16/3	Amphenol C16/3	Amphenol C16/3	Amphenol C16/3	Amphenol C16/3
Degree of protection	IP65	IP65	IP65	IP65	IP65	IP65	IP65
Self-consumption at night	< 1 W	< 1 W	< 1 W	< 1 W	< 1 W	< 1 W	< 1 W
Topology	Transformerless	Transformerless	Transformerless	Transformerless	Transformerless	Transformerless	Transformerless
Noise emission	≤ 29 dB	≤ 29 dB	≤ 29 dB	≤ 29 dB	≤ 29 dB	≤ 29 dB	≤ 29 dB
Warranty	5 years 10/15/20/25 years optional	5 years 10/15/20/25 years optional	5 years 10/15/20/25 years optional	5 years 10/15/20/25 years optional	5 years 10/15/20/25 years optional	5 years 10/15/20/25 years optional	5 years 10/15/20/25 years optional
Standards Compliance							
Safety/EMC	EN61000-6-2, EN61000-6-3, EN61000-3-2, EN61000-3-3, EN61000-3-11, EN61000-3-12, EN/IEC62109-1, EN/IEC62109-2						
Grid Code	VDE-AR-N4105, VDE0126-1-1, BDEW 2008, Enel-Guideline, CEI0-21, G59/2, G83/1-1, AS4777, CGC/GF004:2011, IEC61727, IEC62116, RD1669						

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Smart

- Maximum of 3 MPPT for versatile adaption to different module types or quantities built up with different alignments
- Up to 6 strings intelligent monitoring and fault detection
- RS 485 and USB ports for connectivity and data management
- Local graphic LCD and remote monitoring

Efficient

- Maximum efficiency 98.7%, European efficiency 98.4%
- Reduce 30% AC cable loss with higher output voltage of 480V
- Saving AC cable investment up to 20% without N-Line

Safe

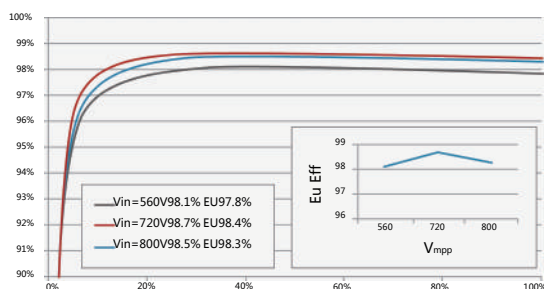
- Type II DC and AC surge protection devices integrated
- Noise \leq 29dB, Class-B electromagnetic radiation
- RCD protection function

Reliable

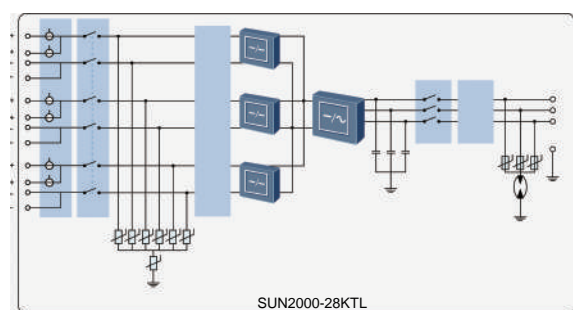
- Warranty up to 25 years
- No need of external fan with natural cooling technology
- Outdoor application of IP65



Efficiency Curve



Circuit Diagram





Technical Specifications	SUN2000-28KTL
	Efficiency
Max. efficiency	98.7%
European efficiency	98.4%
	Input
Max. DC input	28,200 W
Max. input voltage	1000 V
Max. input current per MPPT	18 A
Min. operating voltage	200 V
MPP voltage range	480 V - 800 V
Rated input voltage	680 V
Max. number of inputs	6
Number of MPP trackers	3
	Output
AC output power	27,500 VA
Rated output voltage	3×277 V/480 V+PE
AC power frequency	50 Hz/60 Hz
Max. output current	33.5 A
Adjustable power factor	0.8 leading ... 0.8 lagging
Max. total harmonic distortion	< 3%
	Protection
Input-side disconnection device	Yes
Anti-Islanding protection	Yes
AC over current protection	Yes
DC reverse-polarity protection	Yes
PV-array string fault monitoring	Yes
DC surge arresters	Type II
AC surge arresters	Type II
Insulation monitoring	Yes
Residual current detection	Yes
	Display and Communication
Display	Graphic LCD
RS485	Yes
USB	Yes
	General Data
Dimensions (W/H/D)	520×610×255 mm (20.5 x 24.0 x 10.0 in.)
Weight	48 kg
Operating temperature range	-25 °C to +60 °C (-13 °F to +140 °F)
Cooling	Natural convection
Operating altitude	3000 m
Relative humidity (non-condensing)	0 - 100%
DC connector	Amphenol H4
AC connector	Amphenol C16/3
Degree of protection	IP65
Self-consumption at night	< 1 W
Topology	Transformerless
Noise emission	29 dB
Warranty	5 years, 10/15/20/25 years optional
	Standards Compliance
Safety/EMC	EN61000-6-2, EN61000-6-3, EN61000-3-2, EN61000-3-3, EN61000-3-11, EN61000-3-12, EN/IEC62109-1, EN/IEC62109-2
Grid Code	VDE0126-1-1, BDEW 2008, CGC/GF004:2011, GB/T 19964-2012

String Inverter (28kW)