

# Smart Energy Controller



## Active Safety

AI Powered  
Active Arcing Protection



## Higher Yields

Up to 30% More Energy  
with Optimizer <sup>1</sup>



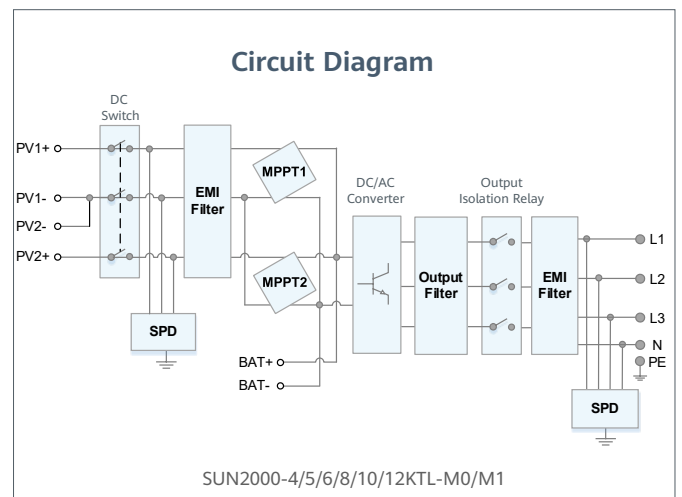
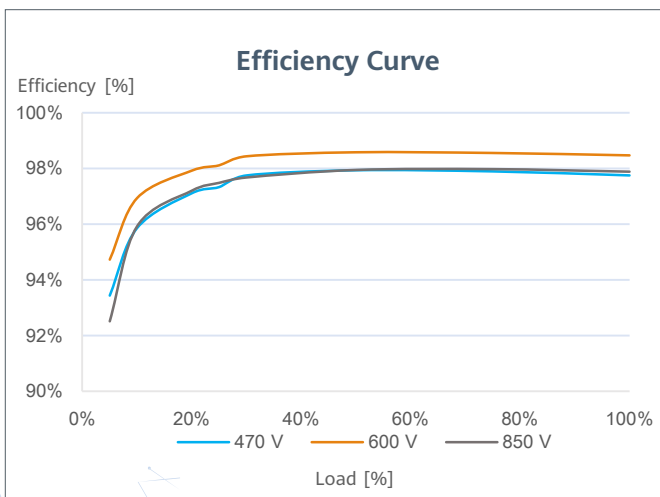
## Battery Ready

Plug & Play battery interface <sup>2</sup>



## Flexible Communication

WLAN, Fast Ethernet, 4G  
Communication Supported



<sup>1</sup> Only applicable to SUN2000-4/5/6/8/10/12KTL-M1 smart energy center.  
<sup>2</sup> SUN2000-4/5/6/8/10/12KTL-M0 will be compatible with HUAWEI smart string ESS in Q1, 2021

SUN2000-4/5/6/8/10/12KTL-M1  
**Technical Specification**

Technical Specification	SUN2000 -4KTL-M1	SUN2000 -5KTL-M1	SUN2000 -6KTL-M1	SUN2000 -8KTL-M1	SUN2000 -10KTL-M1	SUN2000 -12KTL-M1
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**Efficiency**

Max. efficiency	98.3%	98.4%	98.6%	98.6%	98.6%	98.6%
European weighted efficiency	97.1%	97.5%	97.7%	98.0%	98.1%	98.2%

**Input (PV)**

Recommended max. PV power <sup>1</sup>	6,000 Wp	7,500 Wp	9,000 Wp	12,000 Wp	15,000 Wp	18,000 Wp
Max. input voltage <sup>2</sup>	1,100 V					
Operating voltage range <sup>3</sup>	140 V ~ 980 V					
Start-up voltage	200 V					
Rated input voltage	600 V					
Max. input current per MPPT	11 A					
Max. short-circuit current	15 A					
Number of MPP trackers	2					
Max. input number per MPP tracker	1					

**Input (DC Battery)**

Compatible Battery	HUAWEI Smart String ESS 5kWh – 30kWh					
Operating voltage range	600 V ~ 980 V					
Max operating current	16.7 A					
Max charge Power	10,000 W					
Max discharge Power	4,400 W	5,500 W	6,600 W	8,800 W	10,000 W	10,000 W

**Output (On Grid)**

Grid connection	Three-phase					
Rated output power	4,000 W	5,000 W	6,000 W	8,000 W	10,000 W	12,000 W
Max. apparent power	4,400 VA	5,500 VA	6,600 VA	8,800 VA	11,000 VA <sup>4</sup>	12,000 VA <sup>4</sup>
Rated output voltage	220 Vac / 380 Vac, 230 Vac / 400 Vac, 3W / N+PE					
Rated AC grid frequency	50 Hz / 60 Hz					
Max. output current	6.8 A	8.5 A	10.1 A	13.5 A	16.9 A	18.4A
Adjustable power factor	0.8 leading ... 0.8 lagging					
Max. total harmonic distortion	≤ 3 %					

**Output (Off Grid)**

Backup Box	Backup Box – B1					
Maximum apparent power	3,300 VA	3,300 VA	3,300 VA	3,300 VA	3,300 VA	3,300 VA
Rated output voltage	220 V / 230 V					
Maximum output current	15 A	15 A	15 A	15 A	15 A	15 A
Power factor range	0.8 leading ... 0.8 lagging					

**Features & Protections**

Input-side disconnection device	Yes
Anti-Islanding protection	Yes
DC reverse polarity protection	Yes
Insulation monitoring	Yes
DC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11
Residual current monitoring	Yes
AC overcurrent protection	Yes
AC short-circuit protection	Yes
AC overvoltage protection	Yes
Arc fault protection	Yes
Ripple receiver control	Yes
Integrated PID recovery <sup>5</sup>	Yes
Battery reverse charging from grid	Yes

**General Data**

Operating temperature range	-25 ~ + 60 °C (-13 °F ~ 140 °F)
Relative operating humidity	0 %RH ~ 100 %RH
Max. operating altitude	4,000 m (13,123 ft.) (Derating above 2000 m)
Cooling	Natural convection
Display	LED Indicators; Integrated WLAN + FusionSolar App
Communication	RS485; WLAN/Ethernet via Smart Dongle-WLAN-FE; 4G / 3G / 2G via Smart Dongle-4G (Optional)
Weight (incl. mounting bracket)	17 kg (37.5 lb)
Dimension (incl. mounting bracket)	525 x 470 x 146.5 mm (20.7 x 18.5 x 5.8 inch)
Degree of protection	IP65
Nighttime Power Consumption	< 5.5 W <sup>6</sup>

**Optimizer Compatibility**

DC MBUS compatible optimizer	SUN2000-450W-P
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**Standard Compliance (more available upon request)**

Certificate	EN/IEC 62109-1, EN/IEC 62109-2, IEC 62116
Grid connection standards	G98, G99, EN 50438, CEI 0-21, VDE-AR-N-4105, AS 4777, C10/11, ABNT, UTE C15-712, RD 1699, TOR D4, NRS 097-2-1, IEC61727, IEC62116, DEWA

<sup>\*1</sup> Inverter max input PV power is 20,000 Wp when long strings are designed and fully connected with SUN2000-450W-P power optimizers.

<sup>\*2</sup> The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage inverter.

<sup>\*3</sup> Any DC input voltage beyond the operating voltage range may result in inverter improper operating. <sup>\*4</sup> C10 / 11: 10,000 VA

<sup>\*5</sup> SUN2000-4-12KTL-M1 raises potential between PV- and ground to above zero through integrated PID recovery function to recover module degradation from PID. Supported module types include: P-type (mono, poly).

<sup>\*6</sup> <10 W when PID recovery function is activated.

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