# Smart Energy Controller

## Active Safety

AI Powered
Active Arcing Protection

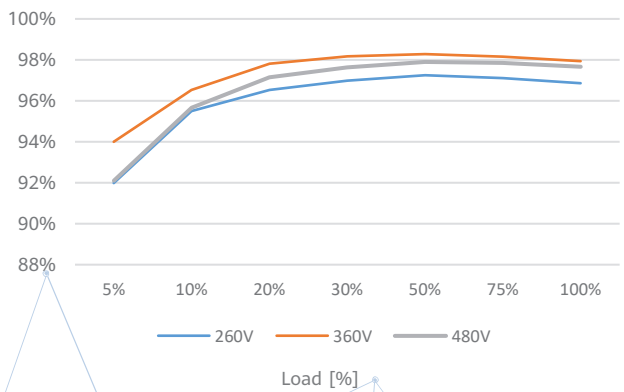
## Higher Yields

Up to 30% More Energy with Optimizer

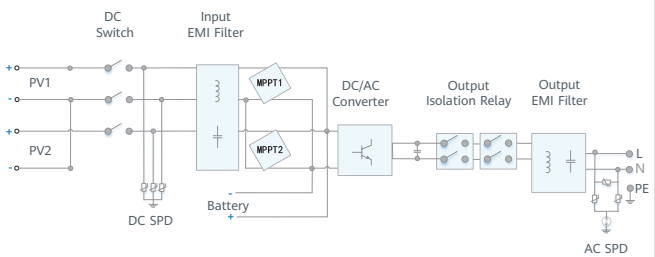
## 2x POWER Battery Ready

5KW AC Output plus
5KW Battery Charge

### Efficiency Curve




### Circuit Diagram




SUN2000-2/3/3.68/4/4.6/5/6KTL-L1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# Technical Specification

| Technical Specification | SUN2000 -2KTL-L1 | SUN2000 -3KTL-L1 | SUN2000 -3.68KTL-L1 | SUN2000 -4KTL-L1 | SUN2000 -4.6KTL-L1 | SUN2000 -5KTL-L1 | SUN2000 -6KTL-L1 |
|---|---|---|---|---|---|---|---|
| **Efficiency** | | | | | | | |
| Max. efficiency | 98.2 % | 98.3 % | 98.4 % | 98.4 % | 98.4 % | 98.4 % | 98.4 % |
| European weighted efficiency | 96.7 % | 97.3 % | 97.3 % | 97.5 % | 97.7 % | 97.8 % | 97.8 % |
| **Input (PV)** | | | | | | | |
| Recommended max. PV power [1] | 3,000 Wp | 4,500 Wp | 5,520 Wp | 6,000 Wp | 6,900 Wp | 7,500 Wp | 9,000 Wp |
| Max. input voltage | 600 V [2] | | | | | | |
| Start-up voltage | 100 V | | | | | | |
| MPPT operating voltage range | 90 V – 560 V [2] | | | | | | |
| Rated input voltage | 360 V | | | | | | |
| Max. input current per MPPT | 12.5 A | | | | | | |
| Max. short-circuit current | 18 A | | | | | | |
| Number of MPP trackers | 2 | | | | | | |
| Max. input number per MPP tracker | 1 | | | | | | |
| **Input (DC Battery)** | | | | | | | |
| Compatible Battery | LG Chem RESU 7H_R / 10H_R | | | | | | |
| Operating voltage range | 350 ~ 450 Vdc | | | | | | |
| Max operating current | 10 A @7H_R / 15 A @10H_R | | | | | | |
| Max charge power | 3,500 W @7H_R / 5,000 W @10H_R | | | | | | |
| Max discharge Power @7H_R | 2,200 W | 3,300 W | 3,500 W | 3,500 W | 3,500 W | 3,500 W | 3,500 W |
| Max discharge Power @10H_R | 2,200 W | 3,300 W | 3,680 W | 4,400 W | 4,600 W | 5,000 W | 5,000 W |
| Compatible Battery | HUAWEI Smart LUNA2000 ESS Battery 5kWh – 30kWh | | | | | | |
| Operating voltage range | 350 ~ 560 Vdc | | | | | | |
| Max operating current | 15 A | | | | | | |
| Max charge Power | 5,000 W [3] | | | | | | |
| Max discharge Power | 2,200 W | 3,300 W | 3,680 W | 4,400 W | 4,600 W | 5,000 W | 5,000 W |
| **Output (On Grid)** | | | | | | | |
| Grid connection | Single phase | | | | | | |
| Rated output power | 2,000 W | 3,000 W | 3,680 W | 4,000 W | 4,600 W | 5,000 W [4] | 6,000 W |
| Max. apparent power | 2,200 VA | 3,300 VA | 3,680 VA | 4,400 VA | 5,000 VA [5] | 5,500 VA [6] | 6,000 VA |
| Rated output voltage | 220 Vac / 230 Vac / 240 Vac | | | | | | |
| Rated AC grid frequency | 50 Hz / 60 Hz | | | | | | |
| Max. output current | 10 A | 15 A | 16 A | 20 A | 23 A [7] | 25 A [7] | 27.3 A |
| Adjustable power factor | 0.8 leading ... 0.8 lagging | | | | | | |
| Max. total harmonic distortion | ≤ 3 % | | | | | | |
| **Output (Off Grid)** | | | | | | | |
| Backup Box (Optional) | Backup Box – B0 | | | | | | |
| Maximum apparent power | 2,000 VA | 3,000 VA | 3,680 VA | 4,000 VA | 4,600 VA | 5,000 VA | 5,000 VA |
| Rated output voltage | 220 V / 230 V | | | | | | |
| Maximum output current | 9.1 A | 13.6 A | 16.7 A | 18.2 A | 20.9 A | 22.7 A | 22.7 A |
| Power factor range | 0.8 leading ... 0.8 lagging | | | | | | |

*1 Inverter max input PV power is 10,000 Wp when long strings are designed and fully connected with SUN2000-450W-P power optimizers.
*2 The maximum input voltage and operating voltage upper limit will be reduced to 495 V when inverter connects and works with LG battery.
*3 2,500 W @ 5kWh HUAWEI ESS battery
*4 AS4777.2: 4,991W. *5. VDE-AR-N 4105: 4,600VA / AS4777.2: 4,999VA. *6. AS4777.2: 4,999VA / C10/11:5,000VA *7. AS4777.2: 21.7A.

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|---|---|---|---|---|---|---|---|
| **Protection & Feature** | | | | | | | |
| 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 | | | | | | |
| Over-heat protection | Yes | | | | | | |
| Arc fault protection | Yes | | | | | | |
| Battery reverse charging from grid | Yes | | | | | | |
| **General Data** | | | | | | | |
| Operating temperature range | -25 ~ +60 °C | | | | | | |
| 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 via inverter built-in WLAN module<br>Ethernet via Smart Dongle-WLAN-FE (Optional); 4G / 3G / 2G via Smart Dongle-4G (Optional) | | | | | | |
| Weight (incl. mounting bracket) | 12.0 kg (26.5 lb) | | | | | | |
| Dimension (incl. mounting bracket) | 365mm * 365mm * 156 mm (14.4 x 14.4 x 6.1 inch) | | | | | | |
| Degree of protection | IP65 | | | | | | |
| Nighttime power consumption | < 2.5 W | | | | | | |
| **Optimizer Compatibility** | | | | | | | |
| DC MBUS compatible optimizer | SUN2000-450W-P | | | | | | |
| **Standard Compliance (more available upon request)** | | | | | | | |
| Safety | EN/IEC 62109-1, EN/IEC 62109-2 | | | | | | |
| Grid connection standards | G98, G99, EN 50549-1, CEI 0-21, VDE-AR-N-4105, AS 4777.2, C10/11, ABNT, UTE C15-712, RD 1699, TOR D4, IEC61727, IEC62116 | | | | | | |