

# Smart Energy Controller



## Active Safety

AI Powered  
Active Arcing Protection



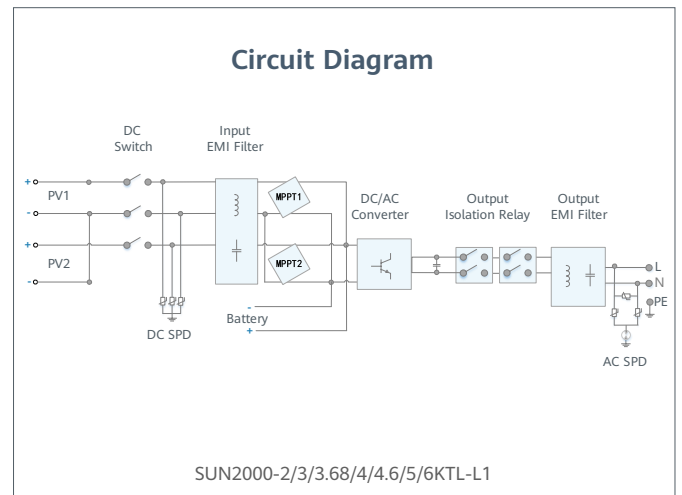
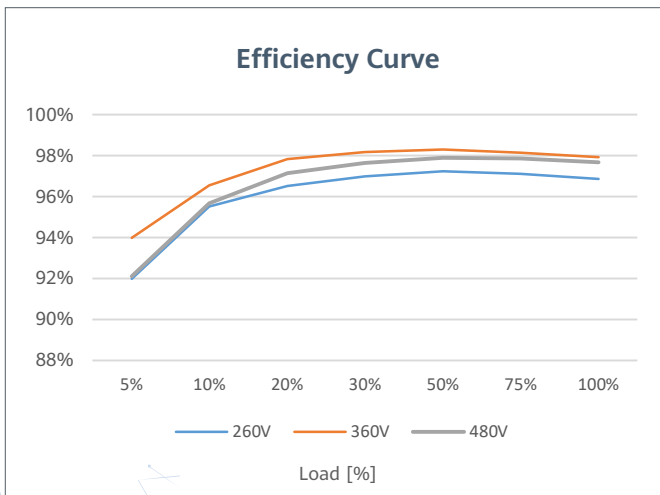
## Higher Yields

Up to 30% More  
Energy with Optimizer



## 2x POWER Battery Ready

5KW AC Output plus  
5KW Battery Charge



## Technical Specification

| Technical Specification | SUN2000<br>-2KTL-L1 | SUN2000<br>-3KTL-L1 | SUN2000<br>-3.68KTL-L1 | SUN2000<br>-4KTL-L1 | SUN2000<br>-4.6KTL-L1 | SUN2000<br>-5KTL-L1 | SUN2000<br>-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 <sup>1</sup> | 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 <sup>2</sup>        |          |          |          |          |          |          |
| Start-up voltage                       | 100 V                     |          |          |          |          |          |          |
| MPPT operating voltage range           | 90 V – 560 V <sup>2</sup> |          |          |          |          |          |          |
| 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 <sup>3</sup>                           |         |         |         |         |         |         |
| 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 <sup>4</sup>  | 6,000 W  |
| Max. apparent power            | 2,200 VA                    | 3,300 VA | 3,680 VA | 4,400 VA | 5,000 VA <sup>5</sup> | 5,500 VA <sup>6</sup> | 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 <sup>7</sup>     | 25 A <sup>7</sup>     | 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 |          |          |          |          |          |          |

<sup>\*1</sup> Inverter max input PV power is 10,000 Wp when long strings are designed and fully connected with SUN2000-450W-P power optimizers.

<sup>\*2</sup> The maximum input voltage and operating voltage upper limit will be reduced to 495 V when inverter connects and works with LG battery.

<sup>\*3</sup> 2,500 W @ 5kWh HUAWEI ESS battery

<sup>\*4</sup> AS4777.2: 4,991W. <sup>\*5</sup> VDE-AR-N 4105: 4,600VA / AS4777.2: 4,999VA. <sup>\*6</sup> AS4777.2: 4,999VA / C10/11: 5,000VA <sup>\*7</sup> AS4777.2: 21.7A.

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

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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 |