

# SMART ENERGY CONTROLLER

Model: SUN2000-2/3/3.68/4/4.6/5/6KTL-L1



**Active Safety**  
Active arcing protection



**Higher Yields**  
Up to 30% more energy  
with optimizer



**Battery Ready**  
Plug & play, whole-home  
power backup

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

## 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  |                     |                        |                     |                       |                     |                     |
| Startup voltage                                    | 100 V  |                     |                        |                     |                       |                     |                     |
| MPPT operating voltage range                       | 90–560 V   |                     |                        |                     |                       |                     |                     |
| 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. inputs per MPP tracker                        | 1  |                     |                        |                     |                       |                     |                     |
| Input (DC Battery)                                 |  |                     |                        |                     |                       |                     |                     |
| Compatible battery                                 | LUNA2000-5/10/15-S0, LUNA2000-5/7/10/12/14/15/17/19/21-S1  |                     |                        |                     |                       |                     |                     |
| Operating voltage range                            | 350–560 V DC   |                     |                        |                     |                       |                     |                     |
| Max. operating current                             | 15 A   |                     |                        |                     |                       |                     |                     |
| Max. charge power                                  | 5,000 W  |                     |                        |                     |                       |                     |                     |
| 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             | 6,000 W             |
| Max. apparent power                                | 2,200 VA   | 3,300 W             | 3,680 W                | 4,400 VA            | 5,000 VA              | 5,500 W             | 6,000 VA            |
| Rated output voltage                               | 220 V AC/230 V AC/240 V AC   |                     |                        |                     |                       |                     |                     |
| Rated AC grid frequency                            | 50 Hz/60 Hz  |                     |                        |                     |                       |                     |                     |
| Max. output current                                | 10 A   | 15 A                | 16 A                   | 20 A                | 23 A                  | 25 A                | 27.3 A              |
| Adjustable power factor                            | 0.8 leading ... 0.8 lagging  |                     |                        |                     |                       |                     |                     |
| Max. total harmonic distortion                     | ≤ 3%   |                     |                        |                     |                       |                     |                     |
| Power output                                       | Yes (via SmartGuard-63A-S0)  |                     |                        |                     |                       |                     |                     |
| 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 charging from grid                         | Yes  |                     |                        |                     |                       |                     |                     |
| General Specification                              |  |                     |                        |                     |                       |                     |                     |
| Operating temperature range                        | –25°C to +60°C (Derated above 45°C @ Rated output power)   |                     |                        |                     |                       |                     |                     |
| Relative operating humidity                        | 0%–100% RH   |                     |                        |                     |                       |                     |                     |
| Operating altitude                                 | 0–4,000 m (Derated above 2,000 m)  |                     |                        |                     |                       |                     |                     |
| Cooling  | Natural convection   |                     |                        |                     |                       |                     |                     |
| Display  | LED indicators; integrated WLAN + FusionSolar app  |                     |                        |                     |                       |                     |                     |
| Communication                                      | RS485, WLAN via inverter built-in WLAN module, Ethernet via Smart Dongle-WLAN-FE (Optional); 4G/3G/2G via Smart Dongle-4G (Optional); SA4H-A02 |                     |                        |                     |                       |                     |                     |
| Weight (incl. mounting brackets)                   | 12.0 kg (26.5 lb)  |                     |                        |                     |                       |                     |                     |
| Dimensions (incl. mounting brackets)               | 365 mm x 375 mm x 156 mm   |                     |                        |                     |                       |                     |                     |
| IP rating  | IP65   |                     |                        |                     |                       |                     |                     |
| Nighttime power                                    | < 2.5 W  |                     |                        |                     |                       |                     |                     |
| Optimizer Compatibility                            |  |                     |                        |                     |                       |                     |                     |
| DC MBUS compatible optimizer                       | SUN2000-450W-P2, SUN2000-600W-P  |                     |                        |                     |                       |                     |                     |
| Standards 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                       |                     |                        |                     |                       |                     |                     |

\*1 The inverter max input PV power is 10,000 Wp when long strings are designed and fully connected with optimizers.

Disclaimer: The preceding values are measured by an internal laboratory of Huawei in a specific environment. The actual values may vary with products, software versions, usage conditions, and environmental factors.