

# Smart Energy Controller

## SUN2000-3-10KTL-M1 (High Current Version)



### Active Safety

AI Powered  
Active Arcing Protection



### Higher Yields

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



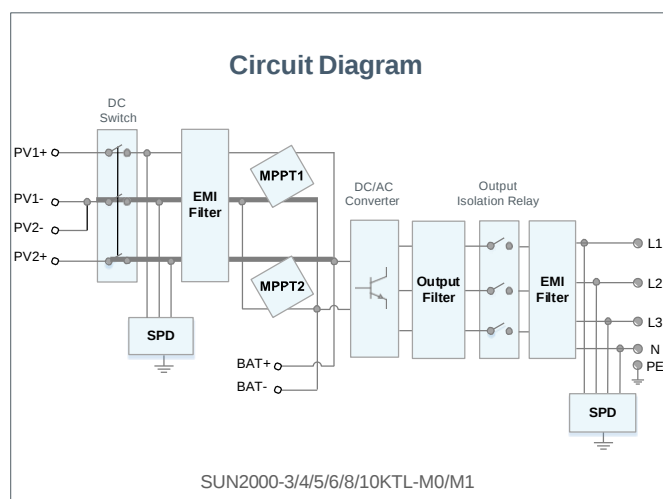
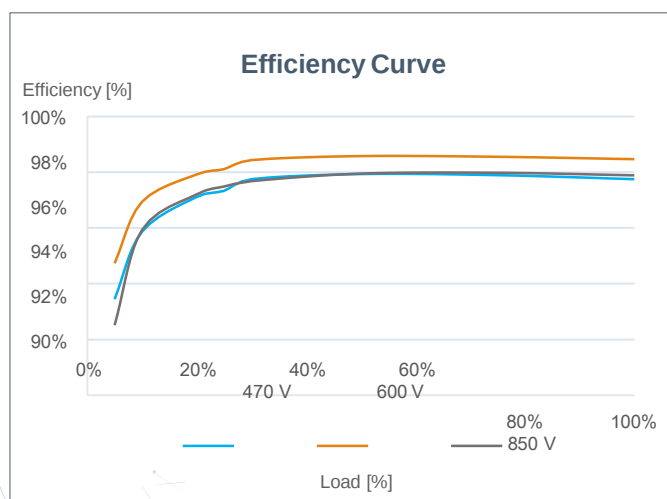
### Battery Ready

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



### Flexible Communication

WLAN, Fast Ethernet, 4G  
Communication Supported



<sup>\*1</sup> Only applicable to SUN2000-3/4/5/6/8/10KTL-M1 smart energy center.

<sup>\*2</sup> SUN2000-3/4/5/6/8/10KTL-M0 will be compatible with HUAWEI smart string ESS in Q1, 2021.

## Technical Specification

| Technical Specification                           | SUN2000<br>-3KTL-M1                                                                                                                     | SUN2000<br>-4KTL-M1 | SUN2000<br>-5KTL-M1 | SUN2000<br>-6KTL-M1 | SUN2000<br>-8KTL-M1 | SUN2000<br>-10KTL-M1   |
|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------|---------------------|---------------------|------------------------|
| Efficiency                                        |                                                                                                                                         |                     |                     |                     |                     |                        |
| Max. efficiency                                   | 98.2%                                                                                                                                   | 98.3%               | 98.4%               | 98.6%               | 98.6%               | 98.6%                  |
| European weighted efficiency                      | 96.7%                                                                                                                                   | 97.1%               | 97.5%               | 97.7%               | 98.0%               | 98.1%                  |
| Input (PV)                                        |                                                                                                                                         |                     |                     |                     |                     |                        |
| Recommended max. PV power <sup>1</sup>            | 4,500 Wp                                                                                                                                | 6,000 Wp            | 7,500 Wp            | 9,000 Wp            | 12,000 Wp           | 15,000 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                       | 13.5 A                                                                                                                                  |                     |                     |                     |                     |                        |
| Max. short-circuit current                        | 19.5 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                               | 3,300 W                                                                                                                                 | 4,400 W             | 5,500 W             | 6,600 W             | 8,800 W             | 10,000 W               |
| Output (On Grid)                                  |                                                                                                                                         |                     |                     |                     |                     |                        |
| Grid connection                                   | Three-phase                                                                                                                             |                     |                     |                     |                     |                        |
| Rated output power                                | 3,000 W                                                                                                                                 | 4,000 W             | 5,000 W             | 6,000 W             | 8,000 W             | 10,000 W               |
| Max. apparent power                               | 3,300 VA                                                                                                                                | 4,400 VA            | 5,500 VA            | 6,600 VA            | 8,800 VA            | 11,000 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                               | 5.1 A                                                                                                                                   | 6.8 A               | 8.5 A               | 10.1 A              | 13.5 A              | 16.9 A                 |
| 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                            | 3,000 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                            | 13.6 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                                                                                                                          |                     |                     |                     |                     |                        |
| 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 |                     |                     |                     |                     |                        |

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

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

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

\*5 SUN2000-3-10KTL-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).

\*6. &lt;10 W when PID recovery function is activated.