

# 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>



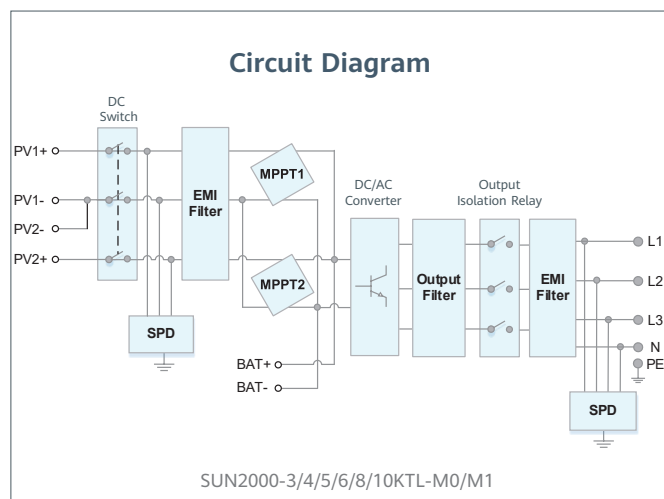
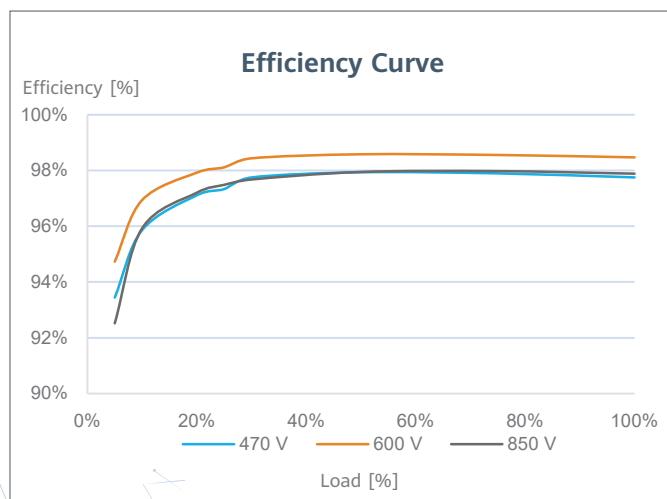
### Battery Ready

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 &amp; 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; SUN2000-450W-P2; SUN2000-600W-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 |

<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> SUN2000-3~10KTL-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).

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