SMART MODULE CONTROLLER

Higher Yields
Module-level Optimization Increase System Energy Yield by 5% to 30%

Active Safety
Firefighting and O&M Safety with Module-level Rapid Shutdown

Flexible Design
Easer Module Layout and 30% Higher Installed Capacity on Average

Smart O&M
Module-level Visibility and Refined Management

SUN2000-450W-P2/SUN2000-600W-P
Technical Specification

Technical Specification	SUN2000-450W-P2	SUN2000-600W-P
Input		
Rated input DC power [1]	450 W	600 W
Absolute max. input voltage	80 V	
MPPT operating voltage range	10-80 V	
Max. short-circuit current (Isc)	14.5 A	
Max. efficiency	99.5%	
Weighted efficiency	99.0%	
Overvoltage category	II	
Output		
Max. output voltage	80 V	
Max. output current	15 A	
Output bypass [2]	Yes	
Output voltage during standby [3]	0 V	
Output impedance during standby	1 kΩ ± 10%	
Communication		
Communication protocol	MBUS	
Standards Compliance		
Safety	IEC62109-1 (class II safety)	
RoHS	Yes	
Fire Safety	VDE-AR-E 2100-712:2018-12	
General Specifications		
Dimensions (W x H x D)	75 mm x 140 mm x 28 mm (3.0 in. x 5.5 in. x 1.1 in.)	
Weight (including cables)	0.6 kg (1.3 lb.)	
Installation part (optional)	Frame mounting bracket/T-shaped bolt [4]	
Input connector	Staubli MC4	
Input wire length	0.15 m (0.49 ft.)	
Output connector	Staubli MC4	
Output wire length	1.3 m (4.3 ft.)	
Operating temperature/humidity range	–40°C to +85°C [5]/0%-100%	
IP rating	IP68	
Compatible inverters	SUN2000-2/3/3.68/4/4.6/5/6KTL-L1, SUN2000-3/4/5/6/8/10KTL-M1, SUN2000-8/10/12/15/17/20KTL-M2, SUN2000-12/15/17/20/25KTL-M5, SUN2000-30/36/40KTL-M3	

PV System Design [6]	SUN2000-2~6KTL-L1	SUN2000-3~10KTL-M1	SUN2000-8~20KTL-M2 SUN2000-12~25KTL-M5	SUN2000-30~40KTL-M3
Min. string length (power optimizers)	4	6	6	6
Max. string length (power optimizers)	25	35	35	25
Max. DC power per string	6,000 W	10,000 W	12,000 W	12,000 W

*1 The maximum power of PV module at STC shall NOT exceed the "Rated Input DC Power" of the power optimizer. PV modules with up to +5% power tolerance are allowed.
*2 Any power optimizer, which is connected to an operating inverter in a PV string, will be bypassed when it fails.
*3 Once the power optimizer stops working, its output voltage is reduced to 0 V.
*4 It is for PV module frame/extruded aluminum profile racking system installation.
*5 When the operating temperature of the SUN2000-450W-P2/600W-P reaches 70 °C to 85 °C, it may shut down due to over-temperature protection and report an over-temperature alarm. After the temperature decreases, it can automatically resume working without causing any damage.
*6 SUN2000-450W-P2/600W-P and MERC-1100/1300W-P can NOT be used in mixture under the same Smart Energy/PV Controller.